

## **FINDING OF NO SIGNIFICANT IMPACT**

### **PERIMETER FENCING AT KIRTLAND AIR FORCE BASE, NEW MEXICO**

The 377th Air Base Wing (377 ABW) of Air Force Materiel Command prepared the attached Environmental Assessment (EA) to assess the environmental consequences of a proposed action at Kirtland Air Force Base (AFB). The action consists of: constructing an eastern perimeter fence and the replacement of fencing along the northern boundary just west of the Withdrawal Area of Kirtland AFB. The Department of the Air Force has independently evaluated this EA and adopts it herein.

### **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

#### **Proposed Action**

The 377 ABW proposes to construct a new eastern perimeter security fence parallel to the eastern boundary of the Withdrawal Area, but approximately ½ mile inside (west) of the property boundary. The fence would extend on a north-south alignment for approximately 5 miles. A cleared space 10 feet wide would be created on each side of the proposed fence line in accordance with United States Forest Service (USFS) directives for firebreaks. Where terrain permits, a patrol road would be established within the firebreak on the Kirtland AFB (west) side of the fence. No additional clearing outside the firebreak would be required for the patrol road.

Geographic conditions exist in certain areas along the eastern boundary of the Withdrawal Area that make the area inaccessible by any means of ground transportation. In those areas, neither a firebreak nor a patrol road would be cleared and no fence would be constructed. This would be in accordance with Air Force Instruction 31-101, *The Air Force Installation Security Program* that allows the use of certain terrain features in lieu of fencing.

The new fence would exclude all of Otero Canyon and most of Bonito Canyon (a total of approximately 1,500 acres) from the fenced area of Kirtland AFB. These areas would be surveyed for and cleared of unexploded ordnance (UXO) when funding becomes available. However, in the meantime, Kirtland would work to develop a program to

possibly allow permitted public access to the established trails outside the fence once it is determined they are safe for recreational purposes.

In addition to the new eastern boundary fence, a length of existing fence (approximately 1,000 feet) located along the northern boundary just west of the Withdrawal Area, would be replaced (refer to Figure 2-1).

### **Alternative 1: Exclusion of Otero Canyon**

Alternative 1 would be similar to the Proposed Action, except that it would only exclude Otero Canyon from the fenced area. Following the fence line of the Proposed Action south from the northeast corner, the fence would extend along the west side of Otero Canyon for approximately 1½ miles and then east to the eastern boundary of the Withdrawal Area. At the intersection with the Withdrawal Area boundary, the fence would continue south to near the southeast corner of the Withdrawal Area.

### **Alternative 2: Eastern Boundary Fence**

A second alternative to the Proposed Action is the construction of the security fence along the eastern boundary of the Withdrawal Area as originally proposed in the Draft EA for this action (refer to Figure 2-1). The public would then be excluded from all portions of the Withdrawal Area for the foreseeable future. Construction would occur as described for the Proposed Action, but would follow the eastern boundary of the Withdrawal Area as closely as possible.

### **No-Action Alternative**

Selection of the No-Action Alternative would result in continued use of the existing fence. The existing fence does not meet current security requirements for perimeter fences, therefore this alternative is not considered acceptable.

## **SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS**

### **Proposed Action**

Implementation of the Proposed Action could result in minor short-term negative impacts to transportation, wildlife, air quality, noise, and soils from construction-related activities. Minor long-term negative impacts to soils, visual resources and vegetation would occur from maintenance of the firebreaks and use of the patrol road. Minor beneficial impacts are expected to occur in the areas of human health and safety, land use, recreation and socioeconomics. No impacts are anticipated to occur to water resources, floodplains, wetlands, minority and low-income populations, cultural resources, or environmental management from the Proposed Action.

**Human Health and Safety.** Beneficial impacts to human health and safety are expected to occur because the new fence would prevent unauthorized access to the base. There are a number of hazardous operations that occur on various portions of the installation and restricting access to the base would help to prevent possible injury to people who inadvertently intrude across base boundaries. The safety of base personnel would also be augmented by a perimeter fence that would deter unauthorized access to the installation.

**Air Quality.** Implementation of the Proposed Action could result in relatively short-term negative impacts to air quality from construction-related activities. Construction activities that would use vehicles producing carbon monoxide, an emission that is monitored in the Albuquerque air basin, would not result in violations of the de minimis levels set for the area. Where applicable, best management practices to reduce erosion by wind and construction traffic would be used to reduce particulate impacts from soil disturbance.

**Noise.** Implementation of the Proposed Action could result in short-term, minor impacts to noise from construction-related activities. However, for the eastern fence, those activities would occur in remote locations of the base and would not affect any noise-sensitive receptors either on or off base. For the northern fence, construction of 1,000 feet of fence through grass and shrubs would be of very short duration.

**Land Use.** No negative impacts are expected to current land uses from the Proposed Action because land use on base would not change as a result of the Proposed Action. If

the Proposed Action or Alternative 1 were implemented, there could be a slight beneficial impact to recreational land use if portions of the Withdrawal Area were ultimately returned to USFS control and public access was allowed.

**Geological Resources.** Implementation of the Proposed Action could result in minor short-term negative impacts to soils from construction-related activities. Where applicable, impacts would be minimized by using best management practices to reduce erosion by wind and water.

**Water Resources.** Implementation of the Proposed Action would not result in any impacts to water resources. No surface waters exist in the area of construction and best management practices would be followed to prevent erosion and runoff from occurring.

**Biological Resources.** Implementation of the Proposed Action would not result in any significant impacts to sensitive species, vegetation, wildlife, wetlands, or listed species.

**Transportation and Circulation.** Implementation of the Proposed Action would not result in impacts to transportation on base because of the remote location of the fencing projects. No long-term effects to traffic are expected because the Proposed Action would not result in any increase in traffic on base.

**Visual Resources.** The visual environment on base would not be significantly affected by the construction of the new fencing. Fences and firebreaks are common sights in the area, especially in the immediate vicinity of a military installation.

**Cultural Resources.** An evaluation of the area of ground disturbance for the Proposed Action indicates that no known significant resources would be directly affected. The fence line would be located to avoid any known areas of cultural resource occurrence. As a result, no impacts to cultural resources are anticipated from the Proposed Action.

**Socioeconomics.** Beneficial effects to socioeconomics from the Proposed Action would be short-term in nature and would result from the purchase of construction materials, salaries paid to construction workers, and contracts for construction equipment from the surrounding community. No negative impacts are expected to minority and low-income populations from the Proposed Action because the action would not change conditions for these populations in the area.

**Environmental Management.** All equipment would be maintained in accordance with applicable regulations and hazardous materials and wastes would be handled, recycled or disposed of in accordance with applicable regulations. Non-hazardous construction debris would be taken to a suitable landfill or recycled. There is sufficient capacity in numerous local landfills to handle the anticipated debris. As a result, no significant impacts are anticipated to occur to environmental management as a result of the Proposed Action.

### **Alternative 1: Exclusion of Otero Canyon**

Implementation of Alternative 1 would result in similar short-term negative impacts to transportation, air quality, noise, and soils from construction-related activities as the Proposed Action. Minor long term negative impacts to soils, visual resources and vegetation would occur from maintenance of the firebreaks and use of the patrol road. Minor beneficial impacts would also be similar to those expected from the Proposed Action. An increase in beneficial impacts to human health and safety would occur if this alternative were implemented because unauthorized personnel would be excluded from a larger portion of the Withdrawal Area where UXO contamination occurs.

### **Alternative 2: Eastern Boundary Fence**

Implementation of Alternative 2 would result in similar short-term negative impacts to transportation, air quality, noise, and soils from construction-related activities as the Proposed Action. Minor long term negative impacts to soils, visual resources and vegetation would occur from maintenance of the firebreaks and use of the patrol road. Minor beneficial impacts would also be similar to those expected from the Proposed Action. An increase in beneficial impacts to human health and safety would occur if this alternative were implemented because unauthorized personnel would be excluded from the entire Withdrawal Area, portions of which are currently contaminated with UXO.

### **No-Action Alternative**

Under this alternative, Kirtland AFB would not construct the proposed new fencing either on the eastern boundary or the northern boundary. There would be no change to any environmental or human resources as a result of implementation of this alternative.

## CONCLUSION

After careful review of the EA of this Proposed Action, I have concluded that the Proposed Action would not have a significant impact on the quality of the human environment and would not generate significant controversy. Therefore, issuance of a Finding of No Significant Impact is warranted, and an Environmental Impact Statement is not required. This analysis fulfills the requirements of the National Environmental Policy Act and the implementing regulations promulgated by the Council on Environmental Quality.

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

HENRY L. ANDREWS, JR., Colonel, USAF  
Commander  
Kirtland Air Force Base

**F I N A L**

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**ENVIRONMENTAL ASSESSMENT  
FOR  
KIRTLAND AIR FORCE BASE  
PERIMETER FENCING**



**January 2004**

**Prepared for  
377th Air Base Wing Air Force Materiel Command**

## ACRONYMS AND ABBREVIATIONS

ABW	Air Base Wing	NAAQS	National Ambient Air Quality Standards
ADT	Average Daily Traffic	NEPA	National Environmental Policy Act
AFB	Air Force Base	NHPA	National Historic Preservation Act
AFI	Air Force Instruction	NMAAQS	New Mexico Ambient Air Quality Standards
AFMC	Air Force Materiel Command	NMDG&F	New Mexico Department of Game and Fish
AQCR	Air Quality Control Region	NMEMNRD	New Mexico Energy, Minerals, and Natural Resources Department
CAA	Clean Air Act	NO <sub>2</sub>	Nitrogen Dioxide
CEQ	Council on Environmental Quality	NPDES	National Pollutant Discharge Elimination System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NRHP	National Register of Historic Places
CFR	Code of Federal Regulations	PLO	Public Land Order
CO	Carbon Monoxide	Pb	Lead
CWA	Clean Water Act	ROI	Region of Influence
dB	Decibels	RPZ	Runway Protection Zone
dBA	A-weighted decibel scale	SHPO	State Historic Preservation Officer
DoD	Department of Defense	SIP	State Implementation Plan
DOE	Department of Energy	SO <sub>2</sub>	Sulfur Dioxide
EA	Environmental Assessment	tpy	tons-per-year
EIAP	Environmental Impact Assessment Process	USACE	US Army Corps of Engineers
EO	Executive Order	USAF	US Air Force
EOD	Explosive Ordnance Disposal	USDA	US Department of Agriculture
EPA	US Environmental Protection Agency	USFS	US Forest Service
FONSI	Finding of No Significant Impact	USFWS	US Fish and Wildlife Service
FR	Forest Road	UXO	Unexploded Ordnance
FT	Forest Trail	V/C	Volume-to-Capacity
FY	Fiscal Year		
HAP	Hazardous Air Pollutants		
IRP	Installation Restoration Program		
LOS	Level of Service		
MSA	Metropolitan Statistical Area		



## **EXECUTIVE SUMMARY**

The potential environmental impacts associated with the construction of an eastern perimeter fence and the replacement of a fence along the northern boundary just west of the Withdrawal Area at Kirtland Air Force Base (AFB) were evaluated in this Environmental Assessment (EA) prepared for the 377th Air Base Wing (377 ABW) of Air Force Materiel Command (AFMC).

### **PURPOSE AND NEED FOR THE PROPOSED ACTION**

AFMC's 377 ABW proposes to construct a new eastern perimeter fence and replace a section of an existing fence located along the northern boundary for the following reasons:

- The new fencing is necessary to meet anti-terrorism force protection requirements.
- Air Force regulations require that installation perimeters be fenced unless the installation commander waives the requirement.
- Much of the current fencing is barbed wire, has been torn down, and does not meet current Air Force requirements.
- The boundary is so indistinct that civilian personnel recreating in the area unknowingly enter Kirtland AFB.
- Uncontested access by unauthorized personnel could jeopardize missions on base and endanger civilians who unknowingly cross base boundaries.

### **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

#### Proposed Action: Exclusion of Otero and Bonito Canyons

The 377 ABW proposes to construct a new eastern perimeter security fence parallel to the eastern boundary of the Withdrawal Area, but approximately ½ mile inside (west) of the property boundary. The proposed fence would be constructed from a point approximately 1½ miles west of the southeastern corner of the Withdrawal Area boundary, north along the ridgeline between Bonito Canyon and the abandoned fire lookout tower. The fence would continue north roughly parallel to the Withdrawal Area boundary along the ridge line between Madera Canyon and Otero Canyon, to a point approximately ½ mile northwest of the northeast corner of the Withdrawal Area

boundary. The fence would extend on a north-south alignment for approximately 5 miles, with the northern end along the eastern edge of the US Department of Energy (DOE) portion of the Withdrawal Area. A cleared space 10 feet wide would be created on each side of the proposed fence line in accordance with United States Forest Service (USFS) directives for firebreaks. Where terrain permits, a patrol road would be established within the firebreak on the Kirtland AFB (west) side of the fence. No additional clearing outside the firebreak would be required for the patrol road.

Geographic conditions exist in certain areas along the eastern boundary of the Withdrawal Area that make the area inaccessible by any means of ground transportation. In those areas, neither a firebreak nor a patrol road would be cleared and no fence would be constructed. This would be in accordance with Air Force Instruction 31-101, *The Air Force Installation Security Program* that allows the use of certain terrain features in lieu of fence.

The new fence would exclude all of Otero Canyon and most of Bonito Canyon (a total of approximately 1,500 acres) from the fenced area of Kirtland AFB. These areas would be surveyed for and cleared of unexploded ordnance (UXO) when funding becomes available. However, in the meantime, Kirtland would work to develop a program to possibly allow permitted public access to the established trails outside the fence once it is determined they are safe for recreational purposes.

In addition to the new eastern boundary fence, a length of existing fence (approximately 1,000 feet) located along the northern boundary just west of the Withdrawal Area, would be replaced (refer to Figure 2-1).

#### Alternative 1: Exclusion of Otero Canyon

Alternative 1 is similar to the Preferred Alternative in the December 20, 1996 USFS Decision Notice/Finding of No Significant Impact for their Ecosystem Management Plan for National Forest Lands in and Adjacent to the Military Withdrawal. In that document, the USFS proposed as one of their alternatives that the DOE return 199 acres of their withdrawn lands and that the Department of Defense (DoD) return 897 acres of their withdrawn lands to the USFS to be used for public recreation. That alternative was selected by the USFS for implementation, but implementation could not occur until the

UXO on the property was cleaned up. Because funding was not available for survey and clean-up of the UXO, implementation of that proposal has never occurred.

Alternative 1 in this document would be similar to the Proposed Action, except that it would only exclude Otero Canyon from the fenced area. Following the fence line of the Proposed Action south from the northeast corner, the fence would extend along the west side of Otero Canyon for approximately 1½ miles and then east to the eastern boundary of the Withdrawal Area. At the intersection with the Withdrawal Area boundary, the fence would continue south to near the southeast corner of the Withdrawal Area.

#### Alternative 2: Eastern Boundary Fence

A second alternative to the Proposed Action is the construction of the security fence along the eastern boundary of the Withdrawal Area as originally proposed in the Draft EA for this action (refer to Figure 2-1). The public would then be excluded from all portions of the Withdrawal Area for the foreseeable future. Construction would occur as described for the Proposed Action, but would follow the eastern boundary of the Withdrawal Area as closely as possible.

#### No-Action Alternative

Selection of the No-Action Alternative would result in continued use of the existing fence. The existing fence does not meet current security requirements for perimeter fences, therefore, this alternative is not considered acceptable. However, because Council on Environmental Quality regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that could occur if the Proposed Action is not implemented, this alternative is carried forward for analysis in this EA.

#### Alternatives Considered, But Not Carried Forward

A series of three fence line alternatives were considered which ranged from complete exclusion of the Withdrawal Area to inclusion of different sized portions of the Withdrawal Area within the fence. These three alternatives were eliminated from further consideration for the following reasons:

- They allowed public access to areas currently used for military training and classified testing.
- These areas are contaminated with UXO and are dangerous to the public. UXO would have to be removed from these large areas or remediated before the public could be allowed access to them.
- The fence lines associated with these three alternatives would have required that DoD and DOE personnel who work at facilities, training areas and/or test sites in the Withdrawal Area would have had to transit back and forth through the fence multiple times per day. Additional gates would have been required, further increasing the costs of these alternatives.

Alternative 3 of the alternatives excluded from further consideration is similar to the alternative proposed by the Save Otero Canyon group during the public comment period. That public proposal was also excluded for the reasons given above.

## **SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS**

### **Proposed Action**

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Implementation of the Proposed Action could result in minor short-term negative impacts to transportation, wildlife, air quality, noise, and soils from construction-related activities. Minor long-term negative impacts to soils, visual resources and vegetation would occur from maintenance of the firebreaks and use of the patrol road. Minor beneficial impacts are expected to occur in the areas of human health and safety, land use, recreation and socioeconomics. No impacts are anticipated to occur to water resources, floodplains, wetlands, minority and low-income populations, cultural resources, or environmental management from the Proposed Action.

**Human Health and Safety.** Beneficial impacts to human health and safety are expected to occur because the new fence would prevent unauthorized access to the base. There are a number of hazardous operations that occur on various portions of the installation and restricting access to the base would help to prevent possible injury to people who inadvertently intrude across base boundaries. The safety of base personnel would also be augmented by a perimeter fence that would deter unauthorized access to the installation.

**Air Quality.** Implementation of the Proposed Action could result in relatively short-term negative impacts to air quality from construction-related activities. Construction activities that would use vehicles producing carbon monoxide, an emission that is monitored in the Albuquerque air basin, would not result in violations of the de minimis levels set for the area. Where applicable, best management practices to reduce erosion by wind and construction traffic would be used to reduce particulate impacts from soil disturbance.

**Noise.** Implementation of the Proposed Action could result in short-term, minor impacts to noise from construction-related activities. However, for the eastern fence, those activities would occur in remote locations of the base and would not affect any noise-sensitive receptors either on or off base. For the northern fence, construction of 1,000 feet of fence through grass and shrubs would be of very short duration.

**Land Use.** No negative impacts are expected to current land uses from the Proposed Action because land use on base would not change as a result of the Proposed Action. If the Proposed Action or Alternative 1 were implemented, there would be a slight beneficial impact to recreational land use if portions of the Withdrawal Area were ultimately returned to USFS control and public access was allowed.

**Geological Resources.** Implementation of the Proposed Action could result in minor short-term negative impacts to soils from construction-related activities. Where applicable, impacts would be minimized by using best management practices to reduce erosion by wind and water.

**Water Resources.** Implementation of the Proposed Action would not result in any impacts to water resources. No surface waters exist in the area of construction and best management practices would be followed to prevent erosion and runoff from occurring.

**Biological Resources.** Implementation of the Proposed Action would not result in any significant impacts to sensitive species, vegetation, wildlife, wetlands, or listed species.

**Transportation and Circulation.** Implementation of the Proposed Action would not result in impacts to transportation on base because of the remote location of the fencing projects. No long-term effects to traffic are expected because the Proposed Action would not result in any increase in traffic on base.

**Visual Resources.** The visual environment on base would not be significantly affected by the construction of the new fencing. Fences and firebreaks are common sights in the area, especially in the immediate vicinity of a military installation.

**Cultural Resources.** An evaluation of the area of ground disturbance for the Proposed Action indicates that no known significant resources would be directly affected. The fence line would be located to avoid any known areas of cultural resource occurrence. As a result, no impacts to cultural resources are anticipated from the Proposed Action.

**Socioeconomics.** Beneficial effects to socioeconomics from the Proposed Action would be short-term in nature and would result from the purchase of construction materials, salaries paid to construction workers, and contracts for construction equipment from the surrounding community. No negative impacts are expected to minority and low-income populations from the Proposed Action because the action would not change conditions for these populations in the area.

**Environmental Management.** All equipment would be maintained in accordance with applicable regulations and hazardous materials and wastes would be handled, recycled or disposed of in accordance with applicable regulations. Non-hazardous construction debris would be taken to a suitable landfill or recycled. There is sufficient capacity in numerous local landfills to handle the anticipated debris. As a result, no significant impacts are anticipated to occur to environmental management as a result of the Proposed Action.

#### Alternative 1: Exclusion of Otero Canyon

Implementation of Alternative 1 would result in similar short-term negative impacts to transportation, air quality, noise, and soils from construction-related activities as the Proposed Action. Minor long term negative impacts to soils, visual resources and vegetation would occur from maintenance of the firebreaks and use of the patrol road. Minor beneficial impacts would also be similar to those expected from the Proposed Action. An increase in beneficial impacts to human health and safety would occur if this alternative were implemented because unauthorized personnel would be excluded from a larger portion of the Withdrawal Area where UXO contamination occurs.

### Alternative 2: Eastern Boundary Fence

Implementation of Alternative 2 would result in similar short-term negative impacts to transportation, air quality, noise, and soils from construction-related activities as the Proposed Action. Minor long term negative impacts to soils, visual resources and vegetation would occur from maintenance of the firebreaks and use of the patrol road. Minor beneficial impacts would also be similar to those expected from the Proposed Action. An increase in beneficial impacts to human health and safety would occur if this alternative were implemented because unauthorized personnel would be excluded from the entire Withdrawal Area, portions of which are currently contaminated with UXO.

### No-Action Alternative

Under this alternative, Kirtland AFB would not construct the proposed new fencing either on the eastern boundary or the northern boundary. There would be no change to any environmental or human resources as a result of implementation of this alternative.

**FINAL  
ENVIRONMENTAL ASSESSMENT  
FOR PROPOSED  
PERIMETER FENCING  
AT  
KIRTLAND AIR FORCE BASE**

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## **SECTION 1**

### **PURPOSE AND NEED FOR THE PROPOSED ACTION**

This section of the Environmental Assessment (EA) describes the purpose and need for the proposed construction of: a new perimeter fence along the eastern boundary of the Withdrawal Area of Kirtland Air Force Base (AFB) in Albuquerque, New Mexico; and the replacement of an existing section of fence located along the northern boundary just west of the Withdrawal Area. Portions of the existing perimeter fence do not meet Air Force requirements and are in need of replacement.

The proposed new eastern fence would be constructed from a point approximately 1½ miles west of the southeast corner of the US Forest Service (USFS) Withdrawal Area boundary, north parallel to the Withdrawal Area boundary, to a point approximately ½ mile west of the northeast corner of the Withdrawal Area boundary. A cleared space 10 feet wide would be created on each side of the proposed fence line in accordance with USFS directives for firebreaks. Where terrain permits, a patrol road would be established within the firebreak on the Kirtland AFB (west) side of the fence. No additional clearing outside the firebreak would be required for the patrol road.

The replacement of existing fence (approximately 1,000 feet) would occur along the northern boundary just west of the Withdrawal Area. An access path would be cleared along the fence line to allow installation and placement of the fence. Section 2 describes the Proposed Action in detail, as well as alternatives to the Proposed Action, including the No-Action Alternative and alternatives considered, but eliminated. This EA is being prepared in compliance with Title 32 National Defense, Chapter VII Department of the Air Force, Code of Federal Regulations (CFR) Part 989 *Environmental Impact Analysis Process* (EIAP), which implements the National Environmental Policy Act (NEPA); the regulations implementing NEPA promulgated by the President's Council on Environmental Quality (CEQ) as Title 40 of the CFR Parts 1500-1508; and Department of Defense (DoD) Directive 6050.1, *Environmental Effects in the United States of DoD Actions*.

#### **1.1 BACKGROUND**

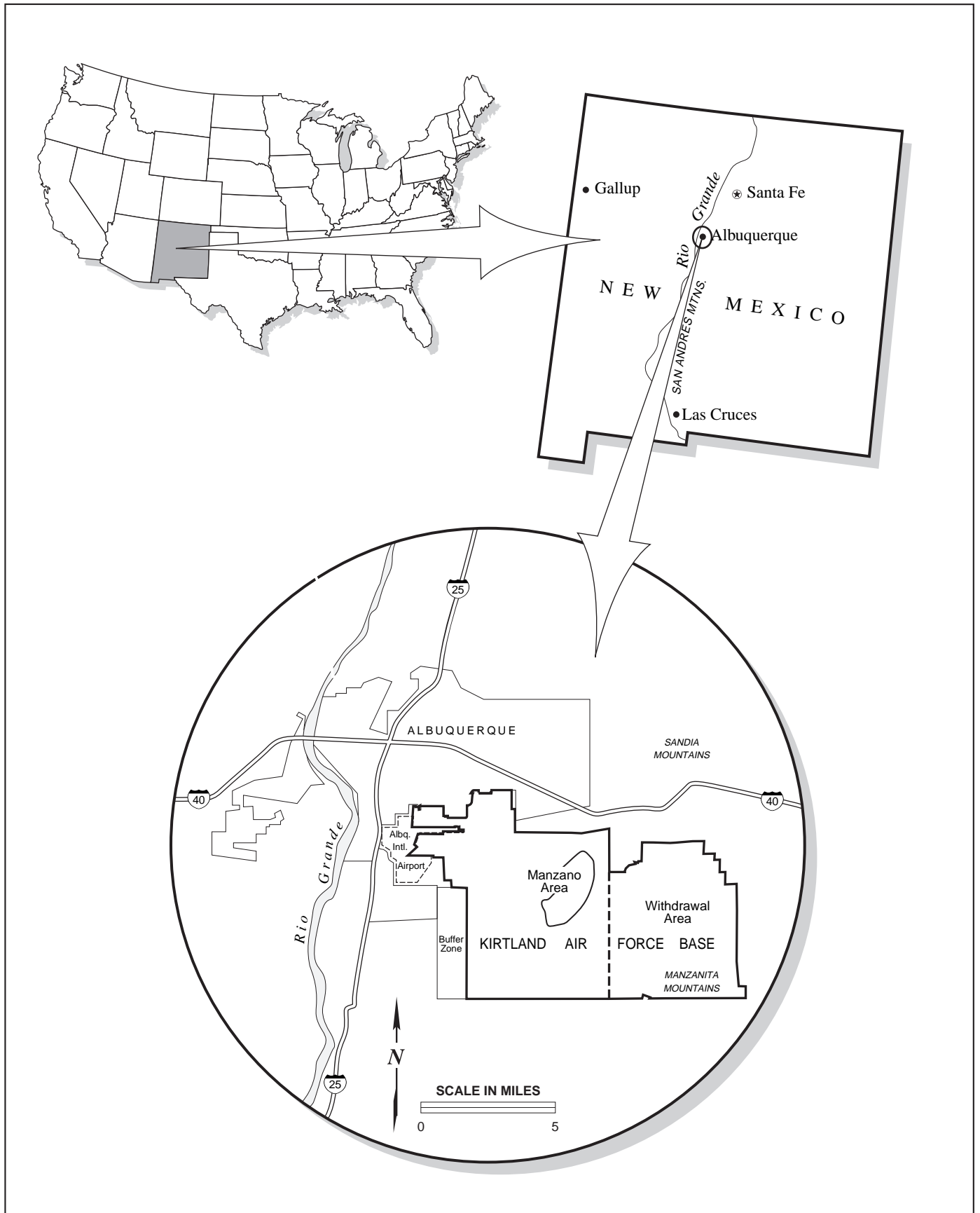
Kirtland AFB, located just southeast of Albuquerque, New Mexico, is now operated by the 377th Air Base Wing (377 ABW) of Air Force Materiel Command (AFMC), the

proponent of the action analyzed in this document. The 377 ABW's prime mission, as the host unit at Kirtland AFB, includes munitions maintenance, readiness, training, and base operating support for approximately 120 associate organizations with personnel, resources, equipment, and facilities. The 377 ABW also provides fire protection and crash and rescue services for Albuquerque International Sunport.

The US Air Force (USAF) owns most of the land at Kirtland AFB, but several other ownerships and leases apply to many areas of the base both large and small. The eastern portion of Kirtland AFB is primarily Cibola National Forest land which was withdrawn from public use in 1943 (Figure 1-1) per Public Land Order (PLO) 133 (Revoked by PLO 995, 1954).

In 1996, the US Department of Agriculture and Forest Service prepared an Environmental Analysis of their Ecosystem Management Plan for National Forest Lands in and adjacent to the Military Withdrawal, Sandia Ranger District, Cibola National Forest and Bernalillo County, NM. On Page 2 under Existing Condition, that document describes the PLOs and withdrawal process as follows:

“The 1985 Cibola National Forest Land and Resource Management Plan, as amended in 1987 and 1991, acknowledged the closure of 20,486 acres of the Sandia Ranger District to public entry for security and safety purposes. PLO 133 first withdrew 4,667 acres of National Forest land in 1943 for use in connection with the prosecution of the war. In 1949, PLO 595 withdrew an additional 13,948 acres for experimental purposes to be used by the Department of Navy. In 1954, the Navy determined that it no longer had use for the withdrawn land. PLO's 133 and 595 were turned over to the Department of Army for use with Sandia Base and were reissued as PLO 995. In 1980, a 2,400 acre portion of PLO 995 (encompassing David Canyon) was revoked and returned to public entry. PLO 995 is now with the Department of Defense. In 1969, PLO 4569 withdrew a 4,595 acre tract north of PLO 995 for research and development by the Atomic Energy Commission. PLO 4569 is with the Department of Energy.”



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FIGURE

EA

Kirtland Air Force Base Location

1-1

“The existing withdrawn lands are established for purposes of tactical training, research, and military developments by both agencies [DoD and DOE] and their contractors. The Cibola National Forest Plan identifies the withdrawn lands as Management Area 17 which specifies that management will remain under the joint control of the U.S. Forest Service, US Air Force, and Department of Energy. All public use of the area will be restricted and enforced by personnel of the Departments of Defense and Energy.”

## **1.2 COMMUNITY CHARACTERISTICS**

The area surrounding Kirtland AFB ranges from urban to unpopulated wilderness. Albuquerque, the largest city in the state of New Mexico, is adjacent to the base on the northwest. The population for the Region of Influence (ROI) for the project area is approximately 570,000 people (US Census Bureau 2003a). Kirtland AFB's host and associate units comprise the largest single employer in New Mexico and have a major economic impact on the surrounding communities: organizations at Kirtland AFB currently employ over 24,000 people and the base's estimated annual economic contribution to the ROI exceeds \$3.9 billion (USAF 2002).

## **1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION**

The 377 ABW at Kirtland AFB proposes to construct a new eastern perimeter fence and replace an existing section of fence located along the northern boundary for the following reasons:

- Air Force regulations require that installation perimeters be fenced unless the installation commander waives the requirements.
- The new fencing is necessary to meet anti-terrorism force protection requirements. Much of the fencing along the eastern boundary of the Withdrawal Area does not meet current Air Force requirements.
- The boundary is so indistinct that individuals recreating in the area unknowingly enter Kirtland AFB. Uncontested access by persons could jeopardize missions on base and/or endanger civilians who cross base boundaries.

### **1.3.1 Purpose of the Proposed Action**

The Proposed Action would increase safety and security at Kirtland AFB by reducing access to the base by unauthorized personnel and would assist in meeting anti-terrorism force protection requirements.

### **1.3.2 Need for the Proposed Action**

Air Force Instruction (AFI) 31-101, *The Air Force Installation Security Program*, paragraph 11.4, requires that installation perimeters be fenced, unless the installation commander specifically waives the requirement after carefully weighing all of the factors set forth in paragraph 11.4. Current installation fencing along the eastern boundary of the Withdrawal Area has gaps in it, does not meet Air Force requirements or is missing entirely. As a result, access by unauthorized personnel occurs frequently, and Kirtland AFB mission security and civilian safety are jeopardized. Additionally, Kirtland AFB is required to meet the new anti-terrorism force protection requirements of the DoD.

Therefore, the installation commander does not waive the requirement and a new fence is needed.

## **1.4 DECISION TO BE MADE AND DECISION-MAKER**

The installation commander will make a decision regarding the best alternative to support AFMC, the Department of Energy (DOE) and Kirtland AFB.

## **1.5 ALTERNATIVE IDENTIFICATION**

The CEQ guidelines implementing NEPA, and 32 CFR 989, which implements the USAF NEPA process, require the consideration of reasonable alternatives to a proposed action. Only those alternatives that are determined to be reasonable relative to their ability to fulfill the need for the action warrant a detailed environmental analysis. The identification of such alternatives involves defining a set of criteria based on the need for the action that an alternative must meet. Once defined, these criteria must be applied consistently to each of the candidate alternatives. For the Proposed Action, alternatives were required to address the need for installation security, civilian safety and meeting USAF regulatory requirements. These alternatives are described in Section 2.2 of this EA.

In addition, there were three alternatives that were considered, but not carried forward. These are also described in Section 2.2.3. These alternatives involved placing the fence well inside the base boundary. These alternatives were determined as unreasonable primarily because they would have denied military access to areas used for testing and training and would have allowed the public continued access to base property that is currently withdrawn from public access for mission security and public safety reasons.

Following a 60-day public comment period on the Draft EA, the Proposed Action was revised and a previously excluded alternative was added to the list of reasonable alternatives. This occurred only after consultation with: base tenants that use the Withdrawal Area for testing and training; safety officers; construction contractors; environmental civil engineering and remediation personnel; and base contractors who are currently surveying the Withdrawal Area. Approximately 1,500 acres are being considered for eventual return to USFS control under the Proposed Action and approximately 500 acres under Alternative 1. These areas are currently contaminated with unexploded ordnance (UXO). The area proposed in what is now Alternative 1 is similar to the USFS 1996 proposal discussed in the Cibola National Forest Land and Resource Management Plan. As stated in the USFS Decision Notice/Finding of No Significant Impact (FONSI) for the Ecosystem Management Plan for National Forest Lands In and Adjacent to the Military Withdrawal, any areas proposed for return to USFS control would require remediation of UXO before the USFS could officially take the land back from the DoD. Precedent for this type of action has already occurred at Kirtland AFB. The McCormick Ranch property on the south west side of Kirtland was cleared of UXO and returned to the State of New Mexico for use as a nature refuge and interpretive learning site on modern farming and ranching techniques and rangeland reclamation. In addition, portions of David Canyon (east of the current Withdrawal Area) once controlled by the DoD were returned to the USFS once the area was determined to be excess to DoD and DOE needs. The return may take many years, however.

## **1.6 REGULATORY COMPLIANCE**

The following section provides a brief summary of the laws, regulations, Executive Orders (EO), and other requirements that are routinely considered in an environmental analysis for this type of proposed action.

### **1.6.1 National Environmental Policy Act**

NEPA requires federal agencies to consider the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, or enhance the environment through well-informed federal decisions. The CEQ was established under NEPA to implement and oversee federal policy in this process. In 1979, the CEQ issued the Regulations for Implementing the Procedural Provisions of NEPA. The CEQ regulations encourage federal agencies to develop and implement procedures that address the NEPA process in order to avoid or minimize adverse effects on the environment. DoD Directive 6050.1 established DoD policies and procedures to supplement the CEQ regulations promulgated under NEPA.

32 CFR 989 establishes the EIAP and the specific procedural requirements for the implementation of NEPA on USAF projects. EO 11514, *Protection and Enhancement of Environmental Quality*, as amended by EO 11991, *Relating to Protection and Enhancement of Environmental Quality*, set policy for directing the federal government in providing leadership in protecting and enhancing the quality of the nation's environment.

### **1.6.2 Air Quality**

The Clean Air Act (CAA) (42 US Code, Sections 7401-7671, et seq., as amended) establishes federal policy to protect and enhance the quality of the nation's air resources to protect human health and the environment. The CAA requires that adequate steps be taken to control the release of air pollutants and prevent significant deterioration in air quality. The 1990 amendments to the CAA require federal agencies to determine the conformity of proposed actions with respect to State Implementation Plans (SIPs) for attainment of air quality goals. The US Environmental Protection Agency has set forth regulations in 40 CFR 51, Subpart W, that require the proponent of an action potentially affecting air quality to perform an analysis to determine if implementation of the action would conform with the SIP.

The State of New Mexico has also adopted the New Mexico Ambient Air Quality Standards, which apply a more stringent standard for carbon monoxide, sulfur dioxide, and for the 24-hour standard for nitrogen dioxide.

### **1.6.3 Water Quality**

The Clean Water Act (CWA) of 1977 and the Water Quality Act of 1987 (33 US Code 1251, et seq., as amended) establish federal policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters and, where attainable, to achieve a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

### **1.6.4 Biological Resources**

The Endangered Species Act requires federal agencies that fund, authorize, or implement actions to avoid jeopardizing the continued existence of federally listed threatened or endangered species, and to avoid destroying or adversely affecting their critical habitat. Federal agencies must evaluate the effects of their actions through a set of defined procedures, which can include preparation of a biological assessment and formal consultation with the US Fish and Wildlife Service.

Section 404 of the CWA regulates development in streams and wetlands and requires a permit from the US Army Corps of Engineers for dredging and filling in waters of the US.

EO 11990, *Protection of Wetlands*, requires that federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

### **1.6.5 Cultural Resources**

AFI 32-7065, *Cultural Resources Management*, implements Air Force Policy Directive 32-70, *Environmental Quality*, and DoD Directive 4710.1, *Archeological and Historic Resources Management*. It sets guidelines for the protection and management of cultural resources, and requires compliance and coordination with NEPA, the National Historic Preservation Act (NHPA) of 1966, as amended, and related federal standards and authorities.

NEPA directs agencies to administer federal programs and resources to foster environmental quality and preservation; establishes federal policies to preserve important



historic and cultural aspects of our national heritage; and requires consideration of environmental concerns during project planning and execution. Compliance with NEPA may be done in coordination with compliance with the NHPA under the regulations of the Advisory Council on Historic Preservation, 36 CFR Part 800. Section 106 of the NHPA requires that every federal agency “take into account” how each of its undertakings could affect historic properties. An agency must afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the agency’s project.

The NHPA establishes policies that support and encourage the preservation of historic and prehistoric resources for present and future generations. The NHPA directs federal agencies to assume responsibility for considering historic properties (i.e. significant cultural resources) in their activities.

The Archaeological and Historic Data Preservation Act of 1974 directs federal agencies to notify the Secretary of the Interior of historic and archaeological data that could be lost as a result of federal construction or other federally licensed or assisted activities. When undertakings may cause irreparable damage to historic or archaeological resources, the agency must notify the Secretary, in writing, of the situation. The agency may undertake recovery, protection, and preservation of data with their own project funds, or they may request the Secretary to undertake preservation measures.

The Archaeological Resources Protection Act of 1979 requires a permit for any excavation or removal of archaeological resources from public lands or Indian lands. Excavations must be undertaken for the purpose of furthering archaeological knowledge in the public interest, and resources removed remain the property of the US. The act provides both civil and criminal penalties for violation of the permit requirements.

#### **1.6.6 Land Use**

EO 11988, *Floodplain Management*, requires each federal agency to take actions to reduce the risk of flood damage; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. Where information is unavailable, agencies are encouraged to delineate the areal extent of floodplains at their site.

### **1.6.7 Environmental Justice and Safety Risks to Children**

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to assess the effects of their actions on these populations within their ROI. Agencies are encouraged to include demographic information related to race and income in their analysis of environmental and economic effects associated with their actions and to identify any potential impacts that could disproportionately affect minority or low-income communities.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs federal agencies to assess the effects of their actions on children within the agencies' purview. Therefore, to the extent appropriate, permitted by law, and consistent with the agency's mission, federal agencies shall:

- Make it a high priority to identify and assess environmental health risks and safety risks that could disproportionately affect children, and
- Ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

### **1.6.8 Public Involvement**

Section 1.6.8 of EO 12372, *Intergovernmental Review of Federal Programs*, directs federal agencies to consult with and solicit comments from state and local government officials whose jurisdictions would be affected by federal actions. In addition, NEPA procedures and USAF policy are intended to ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. In order to comply with these requirements, the Draft EA for this action was released for public review prior to completion of the decision-making process. A 60-day public comment period resulted in over 500 comments. During the comment period, a public information meeting was held on June 23, 2003 that was attended by an estimated 300 - 400 people. Finally, the Final EA and Draft FONSI will be made available to the public at local libraries and on the Web for 30 days prior to the signing of FONSI.

## **1.7 ORGANIZATION OF THIS DOCUMENT**

Section 1 of this EA describes the Purpose and Need for the Proposed Action. Section 2 provides the Description of the Proposed Action and Alternatives. Section 3 describes the Affected Environment on a resource and factor basis. Section 4, Environmental Consequences, assesses the potential impacts of the Proposed Action and Alternatives on the resources and factors described in Section 3. Section 5 lists Persons and Agencies contacted in the preparation of this EA. Section 6 is the List of Preparers. Section 7 contains the References and Bibliography, Appendix A lists Interagency and Intergovernmental Coordination for Environmental Planning Correspondence, and Appendix B contains the public and agency comments received on the Draft EA and the responses to those comments.

## **SECTION 2**

### **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

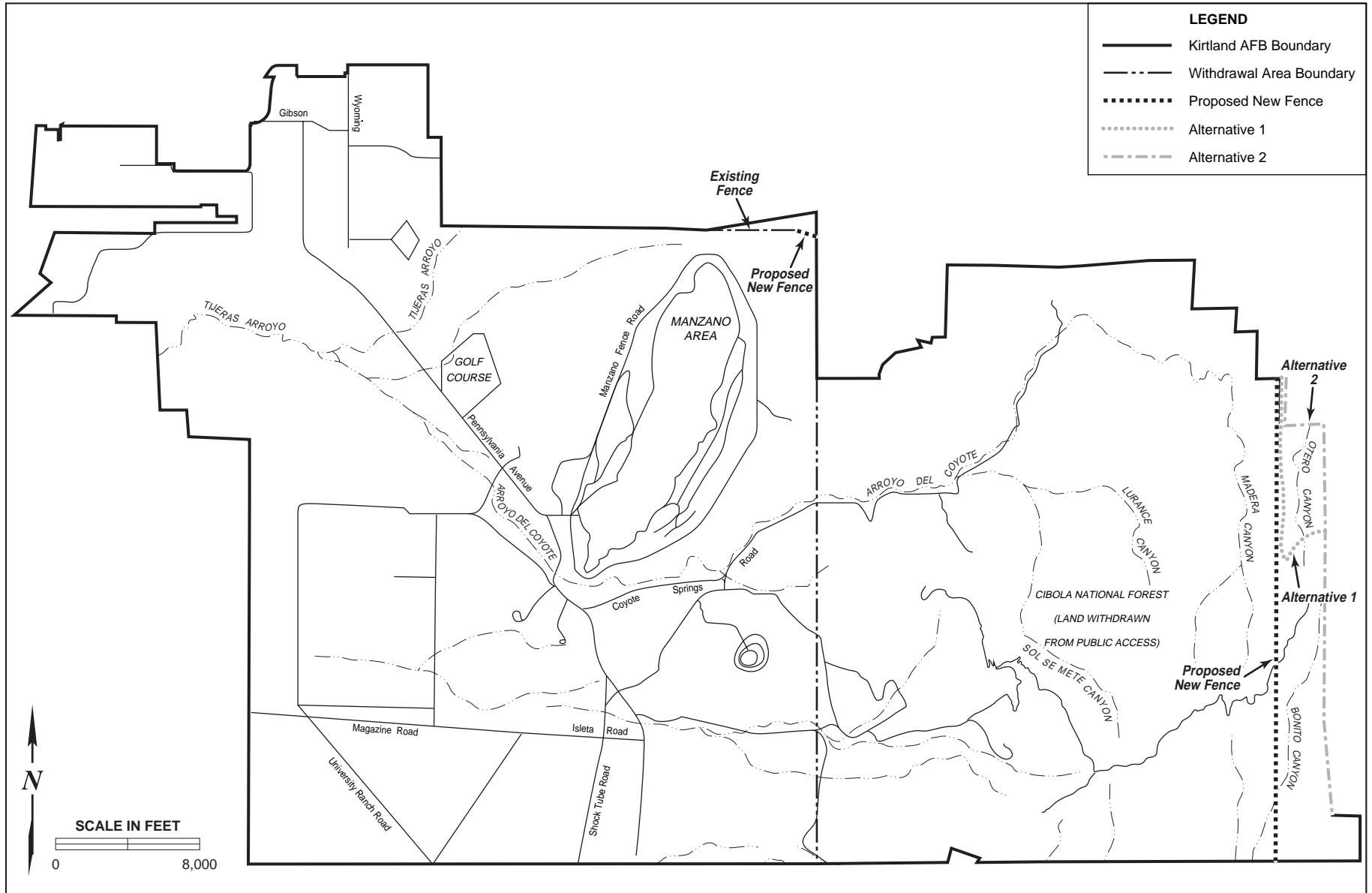
The 377th Air Base Wing (377 ABW) of Air Force Materiel Command proposes to construct a new eastern perimeter fence along or near the eastern boundary of the Withdrawal Area and replace an existing fence located along the northern boundary just west of the Withdrawal Area of Kirtland Air Force Base (AFB) in Albuquerque, New Mexico.

The following section describes the Proposed Action, alternatives to this action, and other actions at Kirtland AFB that could have cumulative effects on environmental and/or human resources at the base when considered with the Proposed Action addressed in this Environmental Assessment (EA).

#### **2.1 DESCRIPTION OF THE PROPOSED ACTION**

The 377 ABW proposes to construct a new eastern perimeter security fence parallel to the eastern boundary of the Withdrawal Area, but approximately ½ mile inside (west) of the property boundary (Figure 2-1). The proposed fence would be constructed from a point approximately 1½ miles west of the southeastern corner of the Withdrawal Area boundary, north along the ridgeline between Bonito Canyon and the abandoned fire lookout tower. The fence would continue north roughly parallel to the Withdrawal Area boundary along the ridge line between Madera Canyon and Otero Canyon, to a point approximately ½ mile northwest of the northeast corner of the Withdrawal Area boundary. The fence would extend for approximately 5 miles with the northern end along the eastern edge of the portion of the Withdrawal Area controlled by the Department of Energy (DOE). A cleared space 10 feet wide would be created on each side of the proposed fence line in accordance with US Forest Service (USFS) directives for firebreaks. Where terrain permits, a patrol road would be established within the firebreak on the Kirtland AFB (west) side of the fence. No additional clearing outside the firebreak would be required for the patrol road.

Geographic conditions exist in certain areas along the eastern boundary of the Withdrawal Area that make the area inaccessible by any means of ground transportation. In those areas, neither a firebreak nor a patrol road would be cleared and no fence would be constructed. This would be in accordance with Air Force Instruction (AFI) 31-101,



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EA

Location of the Proposed Action and Alternatives,  
Kirtland Air Force Base

FIGURE

2-1

*The Air Force Installation Security Program* that allows the use of certain terrain features in lieu of fence.

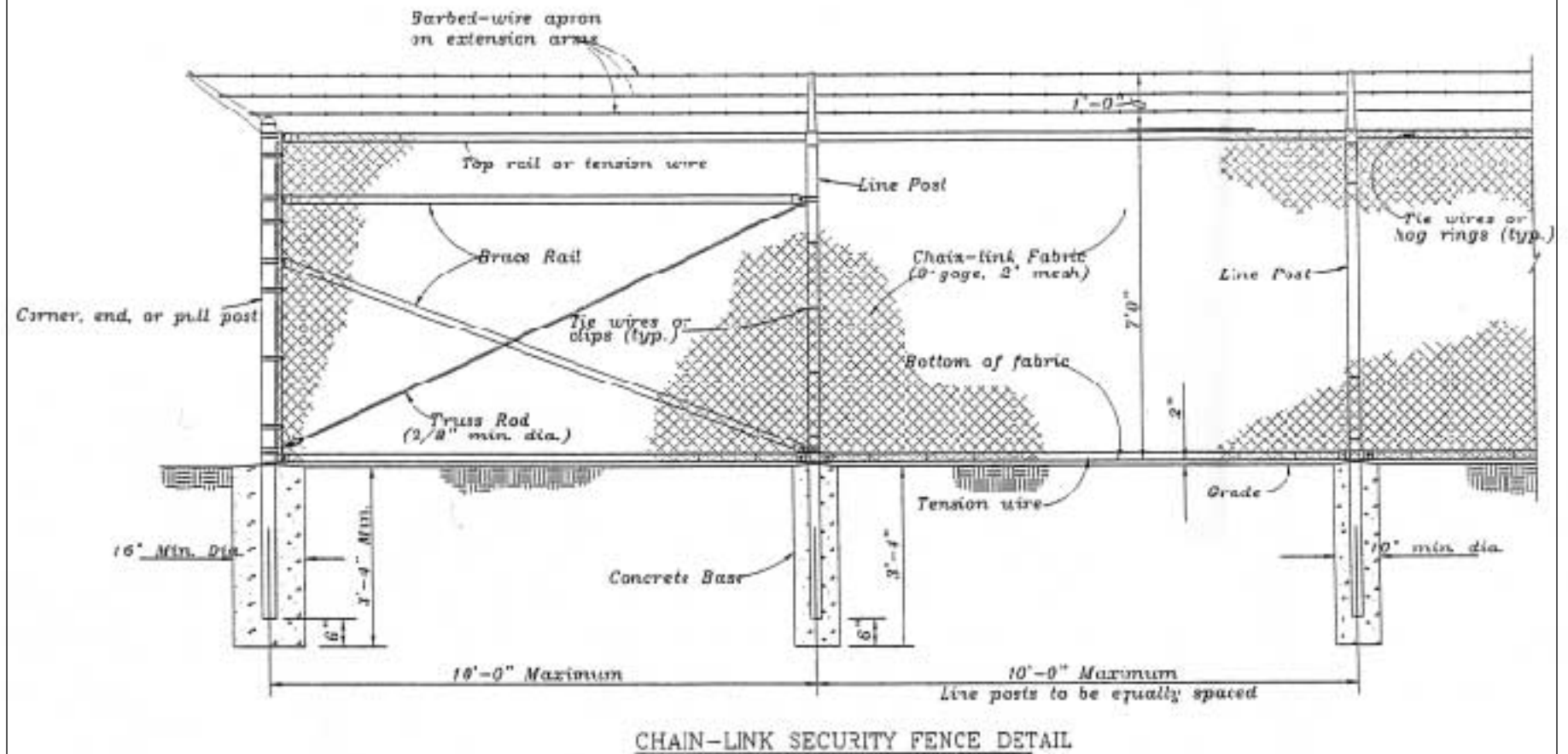
The new fence would exclude all of Otero Canyon and most of Bonito Canyon (approximately 1,500 acres) from the fenced area of Kirtland AFB. These areas would be surveyed for and cleared of unexploded ordnance (UXO) when funding becomes available. However, in the meantime, Kirtland would work to develop a program to possibly allow permitted public access to the established trails outside the fence once it is determined they are safe for recreational purposes.

In addition to the new eastern boundary fence, a length of existing fence (approximately 1,000 feet) located along the northern boundary just west of the Withdrawal Area, would be replaced (refer to Figure 2-1).

#### **2.1.1 Fence Construction**

The Proposed Action includes the construction of approximately 5 miles of fencing as described in Section 2.1 above. Construction details of the fence are shown in Figure 2-2. Where the fence crossed an arroyo or stream channel, a bollard would be constructed as shown in Figure 2-3. A length of existing fence (approximately 1,000 feet) located along the northern boundary just west of the Withdrawal Area, would also be replaced. All work would be in accordance with AFI 31-101 and Air Force Handbook 32-1084, *Facility Requirements*. Wildlife passes would be constructed in the fence to allow wildlife to move freely in and out of the Withdrawal Area. The location of these passes would be determined through consultation with the New Mexico Department of Game and Fish (NMDG&F) and the USFS. The passes would be constructed of three-strand barb-less wire (refer to Figure 2-4), would be twelve feet wide and the top strand of wire would be approximately 3 feet high, in accordance with specifications set forth by the NMDG&F.

Construction access would be via existing gravel and dirt roads or two-track jeep trails where they exist. Where they do not exist, an access road would be cleared which would be used during fence construction and as a patrol road following construction. As the 20-foot wide firebreak is established, construction activities would be confined to the cleared area. Any construction staging areas would be located in areas to be designated by



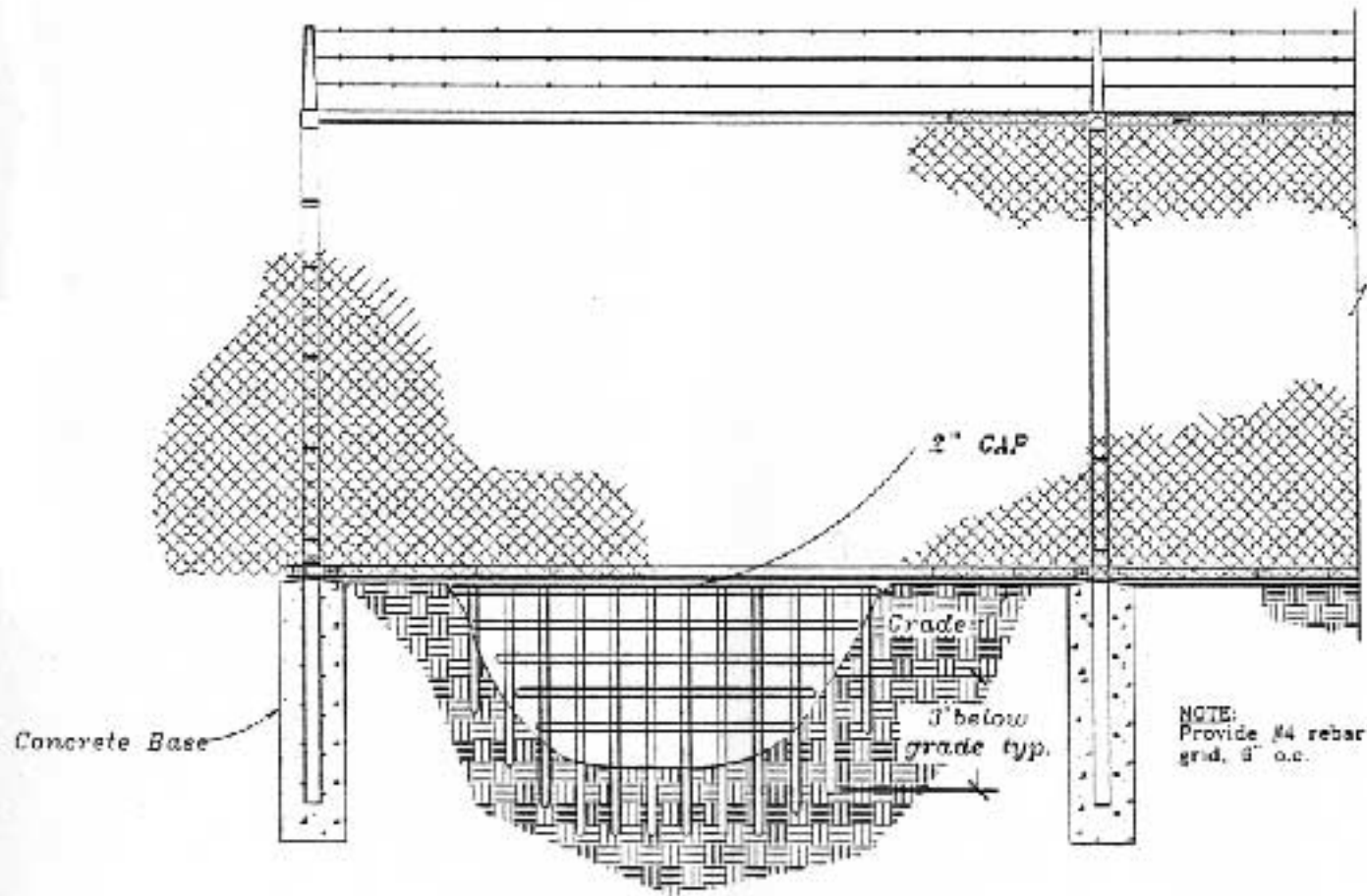
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EA

Construction Details of New Eastern Perimeter Fence

FIGURE

2-2



# SECURE SWALE CROSSING WITH GROUND STAKES

NO SCALE

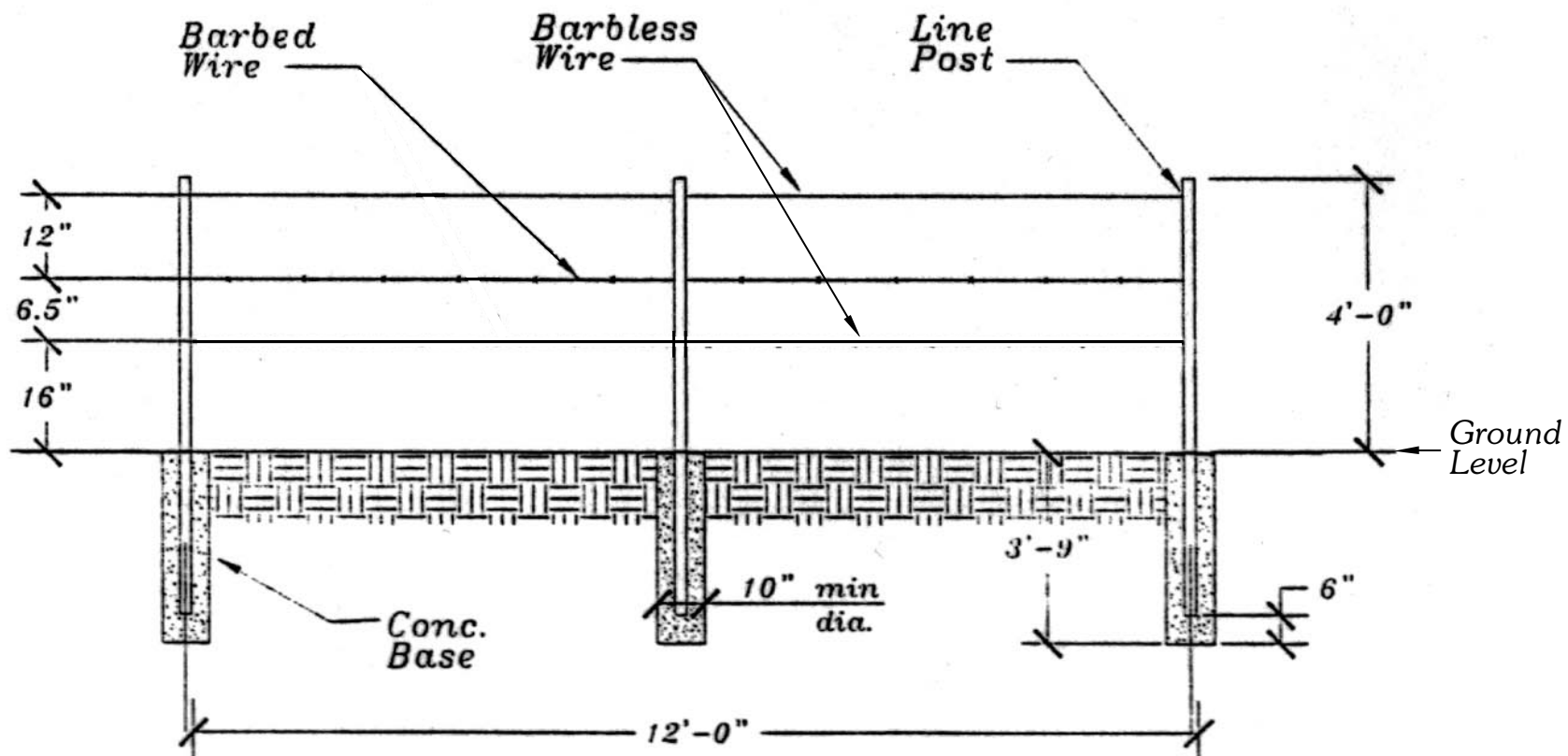
JAN 2004

Construction Details of New Eastern Perimeter Fence Swale Crossing

FIGURE

2-3





# WILDLIFE PASS DETAIL

NO SCALE

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EA

Construction of Wildlife Pass Detail on  
Kirtland Air Force Base

FIGURE

2-4

Kirtland AFB and USFS personnel. Construction would take no more than one year and would require trucks, augers, concrete mixers and hand tools.

Sufficient amounts of the fuels, hydraulic fluids, oils and lubricants required to support contractor vehicles and machinery would be properly stored on site during the project. No other hazardous materials or solvents would be stored on site during construction.

As many as ten workers per day would access the east fence construction site from east of the installation via Highway 337, Raven Road and Mars Court to USFS Road 530 that leads to the East Gate on the Withdrawal Area. It is estimated that as many as 22 vehicle trips per day may be required to transport workers and construction materials to the construction site. Water would be used for dust suppression as required on the dirt roads east of Highway 337.

Work would occur from 7 AM to 6 PM, Monday through Friday for the duration of the project. The work would consist of the following steps:

- Trees would be cut down, trimmed, cut to log size and removed. All slash (limbs cut from the trees) would be shredded or chipped and spread nearby in accordance with USFS directives. Merchantable wood resulting from clearing of the firebreak would be made available to the public at locations determined by the USFS.
- A bulldozer would follow the tree cutting crew to create the firebreak and make access to the construction site possible for worker vehicles, wood hauling trucks and construction material delivery vehicles.
- The fence crew would follow the bulldozer as clearing progresses. Holes would be drilled by truck or tractor-mounted augers and post holes would be filled with concrete once the posts are in place. Chain link fencing material would be secured to the fence and strands of barbed wire added at the top as the final step in the process. Wildlife passes would be added to the fence in areas to be determined by consultation with the USFS and US Fish and Wildlife Service. Routes used for animal travel such as open meadows, low lying areas, and areas of rough terrain would be primary locations for the animal passes. A vehicle access gate or gates would be built at a point to be determined following consultation with the USFS, probably at the intersection of Forest Road (FR) 530 and the new fence line.

Adequate parking would be available for vehicles at locations at or near the construction sites. All contractors working on base would obtain vehicle and personnel passes from

Kirtland AFB Security Forces. Potable water for workers would be available in coolers furnished by either the general contractor or individual crews. Restroom facilities would consist of portable chemical toilets at the construction site. No additional potable water or disposition of wastewater would be required. Hazardous materials (e.g., waste oil, lubricants) would be handled, recycled or disposed of in accordance with the Kirtland AFB Hazardous Waste Management Plan (US Air Force [USAF] 1998a).

Non-hazardous construction debris would be transported to the Kirtland AFB landfill or a suitable off-base landfill for disposal. In an effort to meet USAF waste diversion standards, Kirtland AFB receives monthly reports by item description and weight of any materials removed for recycling or reuse by contractors. In accordance with Department of Defense (DoD) Instruction 4715.4, *Pollution Prevention*, paragraph F.2.c(3)(f), salvageable metal debris resulting from construction activities would be removed and managed appropriately for recycling. If a dust nuisance or hazard occurs during firebreak clearing or fence construction activities, water, supplied by Kirtland AFB, would be used for dust control.

Off-site vendors would supply all material needs (e.g., fencing, posts and concrete). No electricity, natural gas or steam would be required during construction. All construction areas will be cleared of UXO prior to work beginning.

### **2.1.2 Firebreak Clearing**

A 10-foot wide swath would be cleared to dirt on both sides of the fence line. This would result in a 20-foot total width firebreak in accordance with USFS comments on the Draft EA. As vegetation is removed from the firebreak, tree trunks and large limbs would be made available to the public as firewood at a location to be determined by consultation with the USFS. The firebreaks would be maintained by the USAF. A gate would be constructed at the intersection of the fence and FR 530 to allow USFS personnel access to the base. Gates would also be constructed on the firebreak north and south of the gate to prevent unauthorized motorized vehicles from accessing the firebreak.

### **2.1.3 Patrol Road Clearing**

The patrol road on the Kirtland AFB (west) side of the fence would be utilized by four-wheel drive vehicles and would be maintained in a sufficient condition to allow operation

of those vehicles. It would be within the area cleared for the firebreak and would not disturb any additional ground.

#### **2.1.4 Operational Activities**

Operational activities would include patrolling the fence line to maintain base security as well as monitor for and respond to wildfires in the area.

#### **2.1.5 Permitting, Licensing, and Consultation**

The following permitting, licensing, and consultation would be required for the new perimeter fencing construction and operation:

- The construction contractor would be required to obtain the appropriate utilities clearance and excavation permits.
- Survey for and removal of UXO in the area of the firebreak clearing and fence construction would be required prior to any construction activities.

National Pollutant Discharge Elimination System (NPDES) Storm Water General Permit – Construction (Greater than 5 Acres): Individual construction sites (or common sites of development) that would result in disturbance of five (5) or more acres of total land area, require the preparation of a Notice of Intent to discharge and a Storm Water Pollution Prevention Plan in accordance with the NPDES requirements of the Clean Water Act. The permit language for the NPDES General Permit for Storm Water Discharges from Construction Activities is detailed in the Federal Register, Monday July 6, 1998, pages 36489 through 36515. Permits are obtained from Environmental Protection Agency Region VI and coordinated through the Environmental Management Office.

If a dust nuisance or hazard occurs during road clearing or fence construction activities, water, supplied by Kirtland AFB, would be used for dust control.

As stated above, UXO would have to be identified and removed before any lands could be returned to USFS control or public access could be allowed. As part of the Proposed Action, signs would be erected warning the public that the portion of the Withdrawal Area east of the fence would not be safe until UXO identification and clean-up activities were completed. In addition, environmental documentation on the impacts of the UXO

clean-up activities would be completed once the initial UXO investigation was complete and the extent of the necessary clean-up activities was known.

## **2.2 ALTERNATIVES TO THE PROPOSED ACTION**

### **2.2.1 Alternative 1: Remediation of Otero Canyon and Return to USFS**

Alternative 1 (refer to Figure 2-1) is similar to the Preferred Alternative in the December 20, 1996 USFS Decision Notice/Finding of No Significant Impact (FONSI) for their Ecosystem Management Plan for National Forest Lands in and Adjacent to the Military Withdrawal. In that document, the USFS proposed as their preferred alternative that the DOE return 199 acres of their withdrawn lands and that the DoD return 897 acres of the withdrawn lands to the USFS to be used for public recreation. That alternative was selected by the USFS for implementation, but implementation could not occur until the UXO on the property was cleaned up. The Forest Service FONSI states “Hazards that may exist on that portion of the Withdrawal proposed for return to public access, would be cleaned up before the public is allowed to use the lands.” Because funding was not available for survey and clean-up of the UXO, implementation of that proposal has never occurred.

Alternative 1 in this document would be similar to the Proposed Action described in Section 2.1, except at the southeast corner of the Withdrawal Area. Following the fence line of the Proposed Action south from the northeast corner, the fence would extend south along the west side of Otero Canyon for approximately 1½ miles and then east to the eastern boundary of the Withdrawal Area. At the intersection with the Withdrawal Area boundary, the fence would continue south to near the southeast corner of the Withdrawal Area.

Alternative 1 would still require the removal and/or remediation of UXO on the approximately 500 acres of the Withdrawal Area that would be outside the fence. Once remediation was complete, the area could be returned to USFS control and used for public recreation.

Areas of severe terrain near the southeast and northeast corners of the Withdrawal Area would not be fenced. This alternative might allow eventual public access to several Forest Trails (FTs) in the area once UXO in the area have been removed. FT 56 runs

south from the trail head on Highway 337 in Cedro Canyon. It continues up Otero Canyon for almost two miles, where it crosses the boundary of the Withdrawal Area onto base property. FT 268 parallels FT 56 approximately ¼ mile to the west. These two trails join FT 236 at a point approximately ¼ mile inside the eastern installation boundary.

This option would utilize the same fencing construction as the Proposed Action, including the installation of arroyo bollards, gates and wildlife passes where needed. Areas near the northern and southern ends of the fence where geographic features (cliffs, steep inclines etc) make the construction of fencing extremely difficult and are deemed to be relatively impassable to humans would not be fenced.

A patrol road would be cleared along the eastern fence within the Withdrawal Area. A patrol road would not be cleared in areas along the course of the fence where geographic features exist that make the area inaccessible by any means of ground transportation.

Alternative 1 includes the eventual return of approximately 500 acres of DoD land to USFS control after UXO removal, but does not include the return of any land from the DOE. Under this alternative, the fence would exclude that portion of the Withdrawal Area that was considered as Alternative 4 in the Alternatives Considered, But Not Carried Forward section of the Draft EA. This excluded alternative from the Draft EA was included as an alternative in the Final EA following the public comment period and extensive consultation with personnel from numerous base agencies and organizations. During these consultations, it was verified that Otero and Bonito Canyons are not currently being used for military testing or training. Also, Otero Canyon is thought to be less contaminated with UXO than other areas of the Withdrawal Area to the west and south, including Bonito Canyon.

As stated above, UXO would have to be identified and removed before any lands could be returned to USFS control or public access could be allowed. If this alternative were selected, the fence would be constructed as shown in Figure 2-1, and signs would be erected warning the public that the portion of the Withdrawal Area east of the fence would not be safe until UXO identification and clean-up activities were completed. In addition, environmental documentation on the impacts of the UXO clean-up activities would be completed once the initial UXO investigation was complete and the extent of the necessary clean-up activities was known.

### **2.2.2 Alternative 2: Eastern Boundary Fence**

A second alternative to the Proposed Action is the construction of the security fence along the eastern boundary of the Withdrawal Area as originally proposed in the Draft EA for this action (refer to Figure 2-1). The public would then be excluded from all portions of the Withdrawal Area for the foreseeable future. Construction would occur as described for the Proposed Action, but would follow the eastern boundary of the Withdrawal Area as closely as possible.

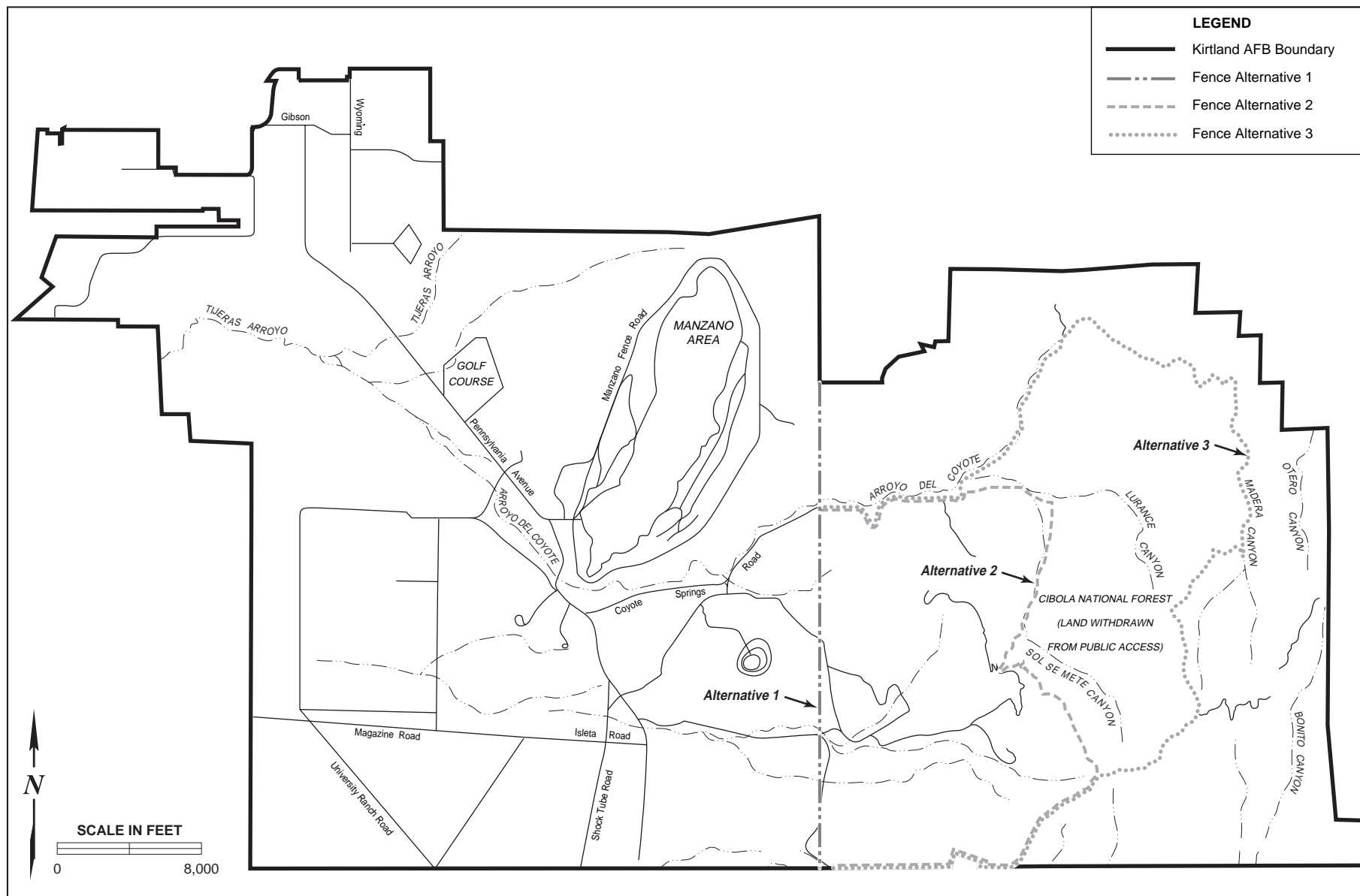
### **2.2.3 No-Action Alternative**

Selection of the No-Action Alternative would result in continued use of the existing fence. The existing fence does not meet current DoD or USAF requirements for perimeter fences, and this alternative is therefore not considered acceptable. However, because Council on Environmental Quality regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that could occur if the Proposed Action is not implemented, this alternative is carried forward for analysis in this EA.

### **2.2.4 Alternatives Considered, But Not Carried Forward**

A series of three fence line alternatives were considered which ranged from complete exclusion of the Withdrawal Area to inclusion of different sized portions of the Withdrawal Area within the fence (Figure 2-5). These three alternatives were eliminated from further consideration for the following reasons:

- They allowed public access to areas currently used for military training and classified testing.
- These areas are contaminated with UXO and are dangerous to the public. UXO would have to be removed from these large areas or remediated before the public could be allowed access to them.
- The fence lines associated with these three alternatives would have required that DoD and DOE personnel who work at facilities, training areas and/or test sites in the Withdrawal Area would have had to transit back and forth through the fence multiple times per day. Additional gates would have been required, as well as guards to man the gates, further increasing the cost of these alternatives.



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EA

Alternatives Considered, But Not Carried Forward,  
Kirtland Air Force Base

FIGURE

2-5



Alternative 3 of the alternatives excluded from further consideration is similar to the alternative proposed by the Save Otero Canyon group during the public comment period. That public proposal was also excluded for the reasons given above.

### **2.3 OTHER FUTURE ACTIONS ON THE BASE**

There are no current or reasonably foreseeable actions in the vicinity of the Proposed Action that should be considered as contributing to potential cumulative impacts in this document.

## **SECTION 3**

### **AFFECTED ENVIRONMENT**

#### **3.1 HUMAN HEALTH AND SAFETY**

##### **3.1.1 Definition of Resource**

Health and safety issues are defined as those that directly affect the continued ability to protect and preserve life and property. Health and safety issues pertain to hazards that arise from physical conditions in the workplace and the actions of people working. The field of safety is focused on prevention of accidents and mitigation of damages resulting from accidents. An accident is an undesirable, unplanned event resulting in physical harm to people, damage to property, or interruption of business. An accident may be the result of an unsafe act or unsafe condition. Each worker must make a conscious effort to work safely, despite any adverse conditions of the work environment. A high degree of safety awareness must be maintained so that safety factors involved in a task become an integral part of that task.

Safety issues typically associated with and specific to military airfields include the potential for mid-air aircraft mishaps, aircraft collisions with objects on the ground (e.g., towers, buildings, or mountains), weather-related accidents, and bird-aircraft collisions. However, since the Proposed Action analyzed in this Environmental Assessment (EA) is not in the vicinity of the Albuquerque International Sunport and no changes in aircraft activity are proposed, only ground-based health and safety issues in and around the proposed project site are addressed in this document.

Because children may suffer disproportionately from environmental health and safety risks, Executive Order (EO) 13045, *Protection of Children From Environmental Health and Safety Risks*, was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that federal agencies' policies, programs, activities, and standards address environmental health and safety risks to children.

### **3.1.2 Existing Conditions**

#### **3.1.2.1 Safety Preparedness**

Kirtland Air Force Base (AFB) has a general safety policy relating to the performance of all activities on the base. Individuals, supervisors, managers, and commanders are expected to give full support to safety efforts. Safety awareness and strict compliance with established safety standards are expected. In the event of a mishap, incidents are investigated, lessons learned are documented, and corrective action is taken. Safety is an integral part of mission performance at Kirtland AFB, and supervisors and managers are strongly encouraged to prevent mishaps. In addition, the Kirtland AFB Disaster Preparedness Operation Plan (Kirtland AFB 2002) establishes procedures to respond to and recover from any disasters or accidents affecting organizations at Kirtland AFB or the surrounding area. This plan includes procedures for responding to hazardous material spills and severe weather.

#### **3.1.2.2 Human Health**

Contractor personnel for the Proposed Action at Kirtland AFB would be responsible for ensuring ground safety and compliance with all applicable occupational health and safety regulations, and worker compensation programs. Contractors also would be required to conduct construction activities in a manner that would not pose any risks to personnel in the project vicinity.

#### **3.1.2.3 Industrial Hygiene**

Exposure to hazardous materials, use of personal protective equipment, and availability of Material Safety Data Sheets are managed under industrial hygiene programs. Industrial hygiene is the joint responsibility of bioenvironmental engineering and contractor safety departments, as applicable. These responsibilities include: reviewing all potentially hazardous workplace operations; monitoring exposure to workplace chemicals (e.g., asbestos, lead [Pb], and hazardous materials), physical (e.g., noise and radiation), and biological agents (e.g., infectious waste); recommending and evaluating controls to ensure personnel are properly protected (e.g., ventilators and respirators); and ensuring a medical surveillance program is in place to perform occupational health physicals for those workers subject to exposure to workplace hazards.

#### 3.1.2.4 Operational Training Areas

The Special Operations Training Area is the only active operational training area located within the Withdrawal Area near the area that the proposed eastern perimeter fence would pass through (Figure 3-1). The Special Operations Training Area extends from the northern boundary to the southern boundary of the Withdrawal Area on Kirtland AFB and lies predominantly along the eastern boundary of the Withdrawal Area. The proposed eastern perimeter fence would pass along the eastern edge of this training area (Figure 3-1).

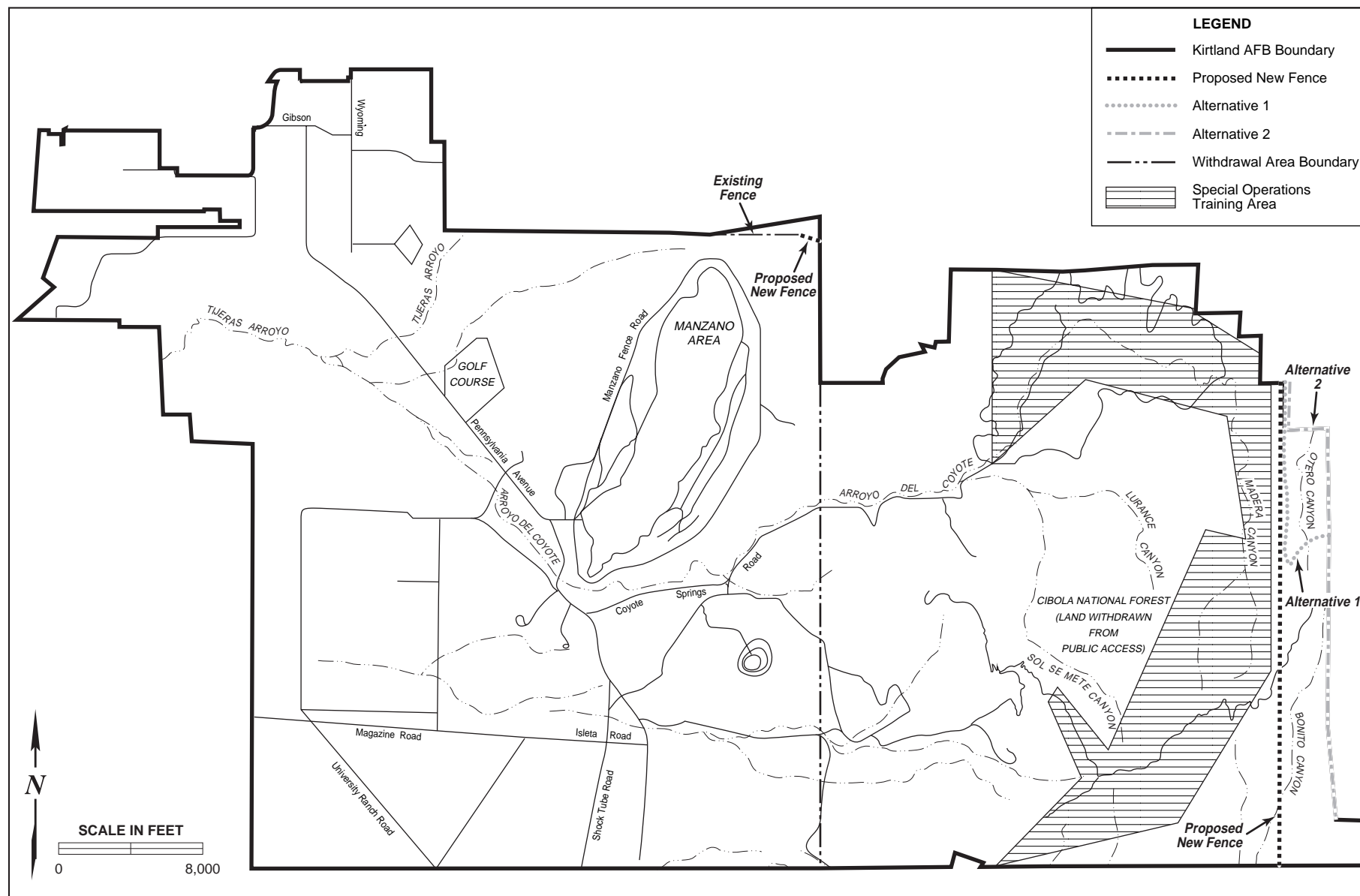
#### 3.1.2.5 Historic Ranges

A preliminary assessment consisting of a file search and on-site personnel interviews was conducted in the fall of 2001 to identify historical ranges on Kirtland AFB. Several historical ranges were identified within Kirtland AFB and the Withdrawal Area (Figure 3-2). The largest site, referred to as the Proximity Fuse Range, encompasses approximately 7,000 acres, much of which lies within the Withdrawal Area and extends to the eastern boundary. Unexploded ordnance (UXO) has been observed in several portions of the Proximity Fuse Range. Kirtland AFB is awaiting funding to investigate the ranges for the presence of UXO and possible soil and groundwater contamination. Funding would then be sought for any necessary remediation activities.

### 3.2 AIR QUALITY

#### 3.2.1 Definition of Resource

Outdoor air quality in a given location is described by the concentration of various pollutants in the atmosphere. Air quality at a given location is a function of several factors, including the quantity and dispersion rates of pollutants in the region, temperature, the presence or absence of inversions, and topographic and geographic features of the region. For the purposes of this EA, Bernalillo County forms the region of concern for air quality.



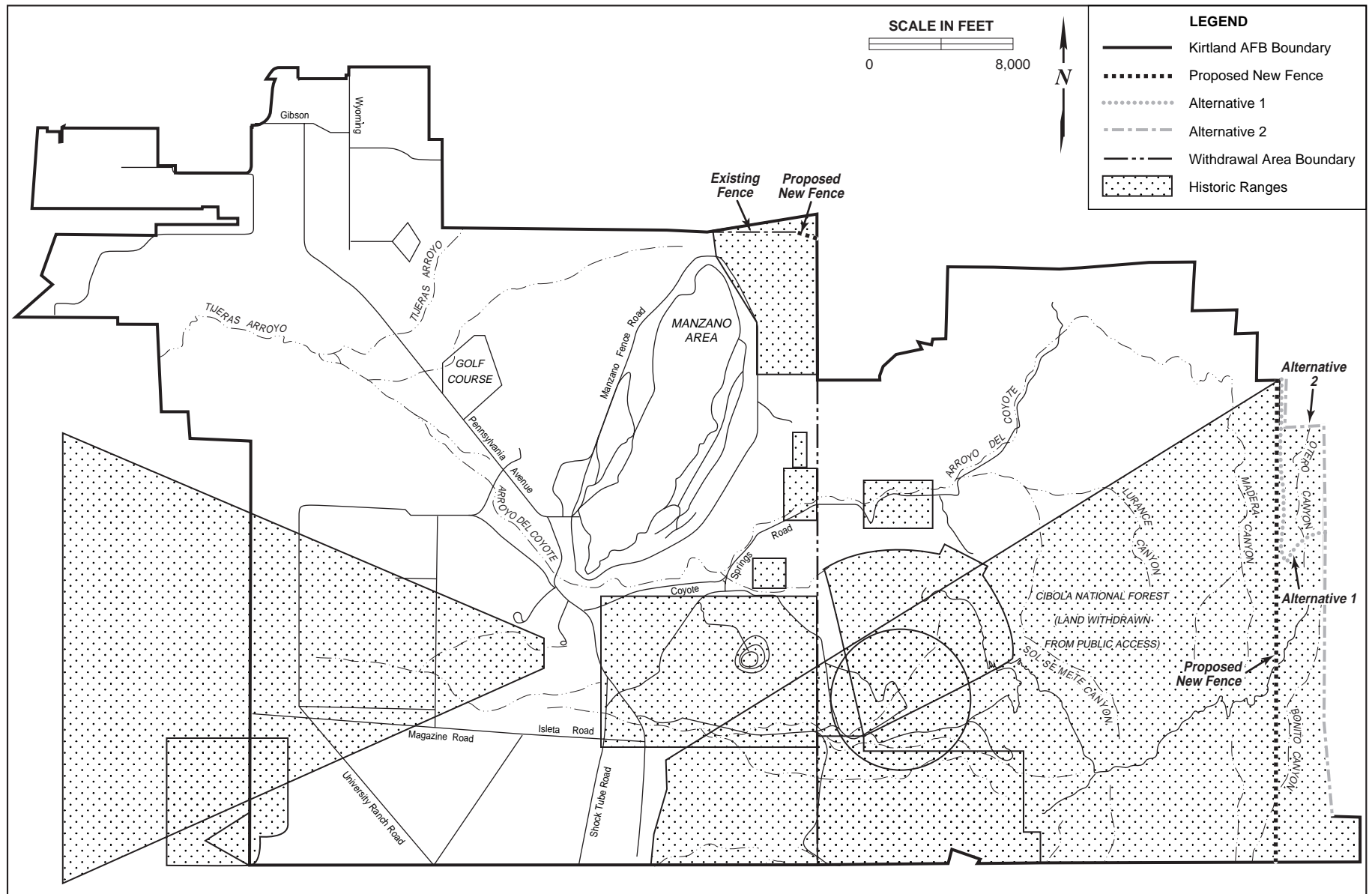
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EA

Operational Training Areas,  
Kirtland Air Force Base

FIGURE

3-1



JAN 2004

EA

**Historic Ranges,  
Kirtland Air Force Base**

FIGURE

3-2

The US Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants, including ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter equal to or less than ten microns in diameter, and Pb. Under the 1990 Clean Air Act (CAA) Amendments, all states must attain compliance through adherence to the NAAQS, as demonstrated by the comparison of measured pollutant concentrations and the NAAQS. Fugitive dust is also a contributor to air pollution within the region because of New Mexico's dry climate. Windblown dust from local fields, streets, roads, and construction zones contributes particulate matter to the local airshed.

The NAAQS represent the maximum levels of background pollution that are considered acceptable, with an adequate margin of safety to protect public health and welfare. The State of New Mexico has adopted additional standards for air quality, the New Mexico Ambient Air Quality Standards (NMAAQS), which apply a more stringent standard for CO, SO<sub>2</sub>, and for the 24-hour standard for NO<sub>2</sub>. See Title 40, Part 50 of the Code of Federal Regulations (CFR) for the NAAQS. Both the NAAQS and NMAAQS are depicted in Table 3-1.

### **3.2.2 Existing Conditions**

#### **3.2.2.1 Climate and Air Quality in Project Area**

The climate in the Albuquerque area is mild, sunny, and dry. Air quality in and around the project area is a function of normal climatic conditions in the region, combined with airborne pollutants from a variety of sources. Gusts up to 50 miles per hour can occur in Tijeras Canyon from the release of heavy cold air held back by the Sandia and Manzanita Mountains. The Albuquerque metropolitan area and Kirtland AFB are within New Mexico's Air Quality Control Region (AQCR) No. 2, which is one of 8 AQCRs in the state. Region No. 2 includes all of northwestern New Mexico. The Albuquerque Environmental Health Department performs air quality functions in Albuquerque, and the Albuquerque-Bernalillo County Air Quality Control Board governs them.

**Table 3-1. National and New Mexico Ambient Air Quality Standards**

Pollutant	Averaging Time	NAAQS <sup>a</sup> (Primary) <sup>b</sup>	NMAAQSC <sup>c</sup>
O <sub>3</sub>	1-hour	0.12 ppm (235 µg/m <sup>3</sup> )	0.12 ppm (235 µg/m <sup>3</sup> )
	8-hour	0.08 ppm (157 µg/m <sup>3</sup> )	0.08 ppm (157 µg/m <sup>3</sup> )
CO	8- hour	9 ppm (10 mg/m <sup>3</sup> )	8.7 ppm (9,900 µg/m <sup>3</sup> )
	1 hour	35 ppm (40 mg/m <sup>3</sup> )	13.1 ppm (14,900 µg/m <sup>3</sup> )
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )
	24-hour	None	0.10 ppm (200 µg/m <sup>3</sup> )
SO <sub>2</sub>	Annual	0.03 ppm (80 µg/m <sup>3</sup> )	0.02 ppm (52 µg/m <sup>3</sup> )
	24-hour	0.14 ppm (365 µg/m <sup>3</sup> )	0.10 ppm (260 µg/m <sup>3</sup> )
	3-hour	0.50 ppm (1300 µg/m <sup>3</sup> )	0.50 ppm (1300 µg/m <sup>3</sup> )
PM <sub>10</sub> <sup>d</sup>	Annual	50 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>
	24-hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>2.5</sub> <sup>e</sup>	Annual	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	65 µg/m <sup>3</sup>	65 µg/m <sup>3</sup>
Pb	Quarter	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>

**Source:** Environmental Protection Agency 2002. Title 40, Part 50 of the Code of Federal Regulations.

- Notes:**
- <sup>a</sup> National standards, other than those based on annual averages or annual geometric means, are not to be exceeded more than once per year.
  - <sup>b</sup> National Primary Standards express the level of air quality necessary to protect the public from any known or anticipated adverse effects of a pollutant, allowing for a margin of safety to protect sensitive members of the population.
  - <sup>c</sup> Standards are presented for pollutant data reported in the State of New Mexico Air Quality Bureau annual report summaries.
  - <sup>d</sup> Particulate matter equal to or less than ten micrometers in diameter.
  - <sup>e</sup> Particulate matter equal to or less than 2.5 micrometers in diameter.

NAAQS = National Ambient Air Quality Standards

O<sub>3</sub> = Ozone

µg/m<sup>3</sup> = micrograms per cubic meter

NO<sub>2</sub> = nitrogen dioxide

PM<sub>10</sub> = particulate matter equal to or less than ten micrometers in diameter

Pb = lead

NMAAQSC = New Mexico Ambient Air Quality Standards

ppm = parts per million

CO = carbon monoxide

SO<sub>2</sub> = sulfur dioxide

PM<sub>2.5</sub> = particulate matter equal to or less than 2.5 micrometers in diameter



An inventory was completed at Kirtland AFB in which a list of facilities with air emissions (both criteria pollutants and hazardous pollutants) was developed. All of the pollutants were then quantified for facilities on the list. There are a number of facilities located on the installation that generate periodic emissions. The inventory calculated the total potential air emissions using the quantities of hazardous and toxic pollutants maintained at each facility. Based upon the results of the emissions study, Kirtland AFB is subject to Title III and Title V permitting requirements of the CAA, respectively. Kirtland AFB is currently a minor source of Hazardous Air Pollutants (HAPs) under Title III of the CAA. Hazardous pollutant emissions come from aircraft engine testing, fire training, fuel dispensing, fuel loading, open burning, above ground storage tanks, underground storage tanks, and external floating roof storage tanks. These HAPs consist of Acetaldehyde, Acrolein, Benzene, Ethylbenzene, Formaldehyde, Xylene, m-Xylene, p-Xylene, Naphthalene, o-Xylene, Styrene, Toluene, Methyl ethyl ketone, 1,3-Butadiene, Phenol, Propionaldehyde, n-Hexane, Chlorobenzene, Cumene, 1,1,2-Trichloroethane, 2,2,4-Trimethylpentane, and Arsenic, Cadmium, Chromium, Lead, Nickel, and Selenium Compounds. Emissions vary for action and pollutant.

A Title V permit application was submitted in December 1995 to the Albuquerque-Bernalillo County Air Pollution Control District and deemed complete in June 1996. Table 3-2 summarizes the CO emissions inventory for Bernalillo County. Table 3-3 summarizes the air emissions inventory for Kirtland AFB.

**Table 3-2. CO Emissions Inventory of Bernalillo County (1996)**

Source Category	CO Emissions (tpy)
On Road Sources <sup>a</sup>	97,450.99
Agricultural Equipment	NA
Off Road Motorcycles	1.643
Lawn and Garden Equipment	NA
Recreation (boats, snowmobiles, etc.)	NA
Aircraft	3,104.14
Construction Equipment	8,456.50
Industrial Equipment	6,985.55
Railroads	28.84
Area Sources <sup>b</sup>	24,524.17
Major Stationary Sources	1,432.26
<b>TOTAL</b>	<b>141,984.09</b>

Source: Albuquerque Environmental Health Department 2003.

Notes: <sup>a</sup>On Road Sources include Light and Heavy Duty Gasoline and Diesel Vehicles and Trucks and Motorcycles.

<sup>b</sup>Area Sources include residential woodburning, agricultural burning, open burning cigarette smoking, fires, natural gas combustion and propane combustion as well as small stationary point sources.

tpy = tons per year NA = not applicable

**Table 3-3. Summary of Calendar Year 2001 Air Emissions for Non-exempt Sources at Kirtland AFB**

Pollutant	Emissions	
	Actual <sup>b</sup> (tpy)	Allowable <sup>b</sup> (tpy)
<b>CRITERIA POLLUTANTS AND PRECURSORS</b>		
CO	33.7	171.9
NO <sub>x</sub>	57.2	176.4
PM	12.7	48.4
PM <sub>10</sub> <sup>a</sup>	12.5	47.8
SO <sub>x</sub>	5.4	23.0
VOC	95.2	166.5
<b>Total HAPs</b>	<b>6.9</b>	<b>12.0</b>

Notes: <sup>a</sup>Particulate matter ≤ 10 μm is a subset of particulate matter.

<sup>b</sup> These cumulative totals include emissions from 20 New Mexico Administration Code Title, Section 11.41 Authority to Construct permitted sources and Title V sources.

tpy = tons per year

CO = carbon monoxide

NO<sub>x</sub> = oxides of nitrogen

PM = particulate matter

PM<sub>10</sub> = particulate matter equal to

SO<sub>x</sub> = sulfur oxides

VOC – volatile organic compounds

or less than 10 microns in diameter

HAP = hazardous air pollutants

### **3.3 NOISE**

#### **3.3.1 Definition of Resource**

Noise is defined as unwanted sound or, more specifically, as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise 1992). The Noise Control Act of 1972 promoted an environment for all Americans free from noise that jeopardizes their health or welfare. Human response to noise varies according to the type and characteristics of the noise, distance between the noise source and the receptor, sensitivity of the receptor and time of day.

Due to wide variations in sound levels, sound is measured in decibels (dB), which is a unit of measure based on a logarithmic scale (e.g., 10-dB increase corresponds to a 100 percent increase in perceived sound). According to the EPA Office of Noise and Abatement (1972-1982), under most conditions, a 5-dB change is necessary for noise increases to be noticeable to humans. Sound measurement is further refined by using an A-weighted decibel scale (dBA) that emphasizes the range of sound frequencies that are most audible to the human ear (between 1,000 and 8,000 cycles per second).

A Day-Night Average A-Weighted Sound Level is a noise metric that averages A-weighted sound levels over a 24-hour period, with an additional 10-dB penalty added to noise events occurring between 10:00 p.m. and 7:00 a.m.

Ambient background noise in urbanized areas typically varies from 60 to 70 dBA, but can be higher; suburban neighborhoods experience ambient noise levels of approximately 45 to 50 dBA (EPA 1978). Remote, mountain terrain like the eastern boundary of the Withdrawal Area ranges from 35 to 45 dBA. Table 3-4 identifies noise levels associated with common indoor and outdoor activities and settings and identifies subjective human judgment of noise levels, specifically the perception of noise levels doubling or being halved.

A noise-sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes,

**Table 3-4. Typical A-Weighted Sound Levels**

Noise Source	A-Weighted Sound Level in Decibels	Noise Environment	Subjective Evaluations
Lear Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a few feet away	110	Very Loud	16 times as loud
Chainsaws <sup>1</sup>	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Moderately Loud	
Pneumatic Drill; Vacuum Cleaner	80	Moderately Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	
Average Office	60	Moderate	½ times as loud
Suburban Street	55	Moderate	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	¼ times as loud
Large Transformer	45	Quiet	
Average Residence Without Stereo Playing	40	Faint	⅛ times as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing

Source: LSA Associates, Inc. 2002.

<sup>1</sup>National Institute for Occupational Safety and Health 2003.

educational facilities, and libraries. Sensitive receptors may also include noise-sensitive cultural practices, some domestic animals or certain wildlife species.

### 3.3.2 Existing Conditions

Localized sources of noise in the proposed project area, both on and off base, include military and civilian aircraft operations at Albuquerque International Sunport and a limited amount of vehicular traffic. The Proposed Action assessed in this EA would have no effect on aircraft noise, but aircraft noise is mentioned because commercial and military aircraft operations at Albuquerque International Sunport are the primary sources of noise in the area. The current noise abatement program prohibits flights over residential areas after 9:00 p.m. Table 3-5 shows typical noise levels generated from various types of construction equipment.

**Table 3-5. Construction-Equipment Noise Ranges**

			Noise level at 50 ft, dBA					
			60	70	80	90	100	110
Equipment powered by internal combustion engines	Earth-Moving	Compactors (rollers)		70	75			
		Front Loaders		70	85			
		Backhoes		70	90			
		Tractors		75	95			
		Scrapers, graders		80	95			
		Pavers			85	90		
		Trucks			85	95		
	Materials handling	Concrete mixers		75	90			
		Concrete pumps			80	85		
		Cranes, movable		75	90			
		Cranes, derrick			85	90		
	Stationary	Pumps	65	70				
		Generators		75	90			
		Compressors		75	95			
Impact equipment	Pneumatic wrenches				80	90		
	Jackhammers and rock drills				80	95		
	Impact pile drivers, peaks						100	110
Other	Vibrator			70	90			
	Saws				80	90		

**Source:** Environmental Protection Agency 1972.

**Notes:** Based on limited available data samples

ft = feet dBA = A-weighted decibel scale

### **3.4 LAND USE**

#### **3.4.1 Definition of Resource**

Land use is the classification of either natural or human-modified activities occurring at a given location. Natural land use includes rangeland and other open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, communications and utilities, agricultural, institutional, recreational, and other developed areas. Land use is regulated by management plans, policies, regulations, and ordinances (e.g., zoning) that determine the type and extent of land use allowable in specific areas and protect specially designated or environmentally sensitive areas.

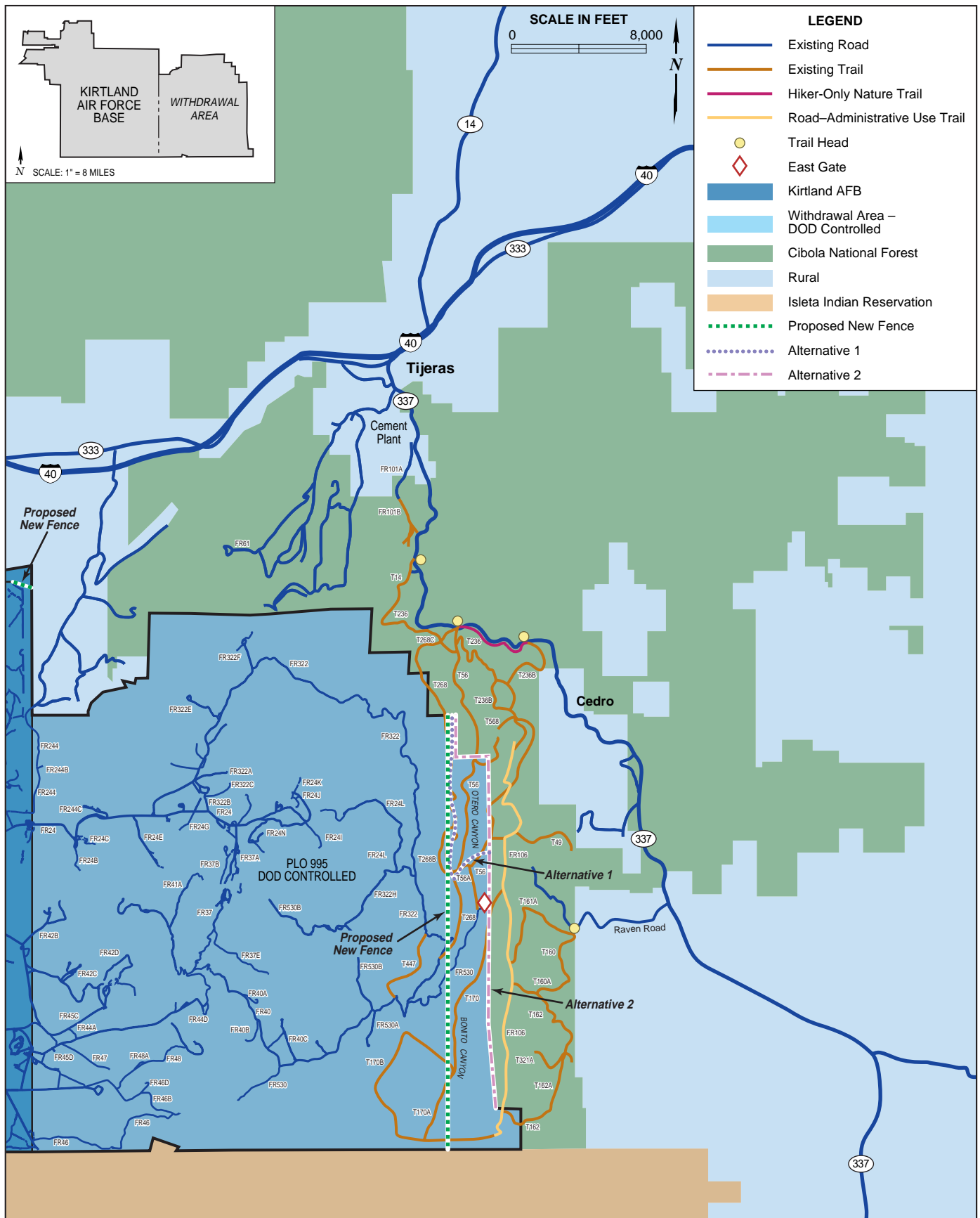
#### **3.4.2 Existing Conditions**

Bernalillo County encompasses approximately 477 square miles of land. In the vicinity of the Proposed Action, land use is predominantly rural with Cibola National Forest land to the northeast and east. Land to the north, northwest and west of the base is predominately urban (established and developing land). Land use adjacent to Kirtland AFB in the project area (northeast and east) is bordered on the east by the Cibola National Forest. South and southeast of the installation, the Isleta Pueblo lands are generally open space and forest or vacant land. These lands are utilized by Isleta Pueblo for a variety of highly sensitive cultural practices. Figure 3-3 shows the land use in the area.

In the last 100 years, the Albuquerque metropolitan statistical area (MSA), which includes Bernalillo County, has increased from 2,000 to 103,000 acres.

##### **3.4.2.1 Land Use In and Around Project Area**

Kirtland AFB is among the largest bases (land area) owned by the US Air Force (USAF) with 52,678 acres of land (62 square miles). Kirtland AFB currently provides support for a variety of missions that include every primary mission traditionally fulfilled by the USAF, as well as many specialized activities less common to other USAF bases. In particular, Kirtland AFB is one of the nation's leading research, development, test, and evaluation facilities, with more than three-fourths of the base devoted to these activities.



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FIGURE

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Land Use

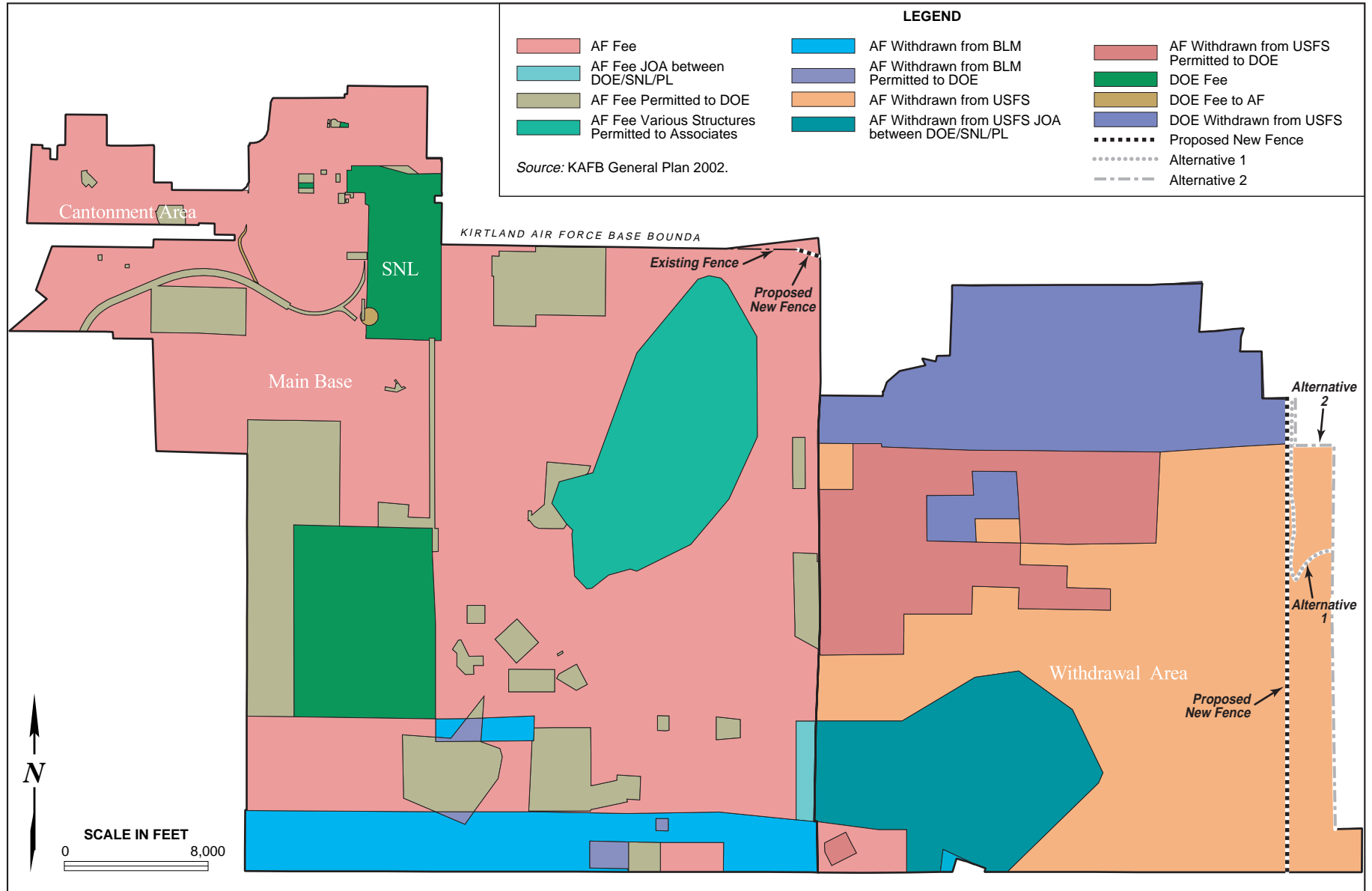
3-3

Kirtland AFB manages a wide variety of land ownerships and land use agreements with multiple state and federal agencies (Figure 3-4). The land at Kirtland AFB is primarily owned by the USAF, but several other ownerships and leases apply. The eastern portion of Kirtland AFB is primarily Cibola National Forest land withdrawn from the US Forest Service (USFS) for military use. These lands have been withdrawn from public use and are known as the Withdrawal Area. The area was originally withdrawn in 1943 by Public Land Order (PLO) 133 and is currently withdrawn by PLO 995. The US Department of Energy (DOE) also uses some of the Withdrawal Area, and leases other areas from the USAF (USAF 2002). Some areas on the southern end of the installation are lands withdrawn from the Bureau of Land Management. The new eastern perimeter fence would be located approximately ½ miles west of the eastern boundary of the Withdrawal Area. The fence proposed for replacement is located along the northern boundary of the base just west of the Withdrawal Area.

Lands in the Withdrawal Area are used for military training, DOE and Department of Defense (DoD) testing and research and the potential use of hazardous materials by agencies and contractors. Northeast and east of the Withdrawal Area is USFS land that includes picnicking, camping areas, and recreational activities. Trails that are in or enter the Withdrawal Area within the project area include Forest Trail (FT) 268, FT 268B, FT 236, FT 56, and FT 56A and additional trails and Forest Roads (FR). These trails either begin or are connected to trails and roads inside and outside of the project area and within the Withdrawal Area. Hiking, biking, and horseback riding are just a few of the popular recreational activities occurring in the area. Even though the Withdrawal Area is not open for public recreational use, the area is accessible and the public uses the area for recreation.

Lands east of the Withdrawal Area are in Management Area 2 of the Cibola National Forest. Future land use and proposals are referenced in the Cibola National Forest Land and Resource Management Plan (1985) and the US Department of Agriculture (USDA) USFS Environmental Analysis for the Ecosystem Management Plan for National Forest Lands in and Adjacent to the Military Withdrawal (1996).





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Kirtland Air Force Base Land Agreements

FIGURE

3-4

## **3.5 GEOLOGICAL RESOURCES**

### **3.5.1 Definition of Resource**

The geological resources of an area consist of all soil and rock materials. For the purpose of this document, the terms “soil” and “rock” refer to unconsolidated and consolidated earth materials, respectively. The geology of an area includes mineral deposits, notable landforms, tectonic features, and fossil remains.

### **3.5.2 Existing Conditions**

#### **3.5.2.1 Geology**

Kirtland AFB is situated in the eastern portion of the Albuquerque Basin, one of the largest of a series of north-trending basins measuring 90 miles long and 30 miles wide (Fenneman 1931). The basin extends from the gently sloping area near the Rio Grande River to the steep foothills and slopes of the Sandia and Manzanita Mountains. Different landforms within the basin include mesas, benches, stream terraces, low hills, ridges, and graded alluvial slopes (Lozinsky et al. 1991; Kelley 1977; Kelley and Northrup 1975). Elevations at Kirtland AFB range from 5,200 feet in the west to almost 8,000 feet in the Manzanita Mountains. Several canyons are found in the region. David, Otero, Bonito, and Madera Canyons are located near the proposed fenceline.

Most of the Albuquerque Basin consists of poorly consolidated sediments that eroded from the surrounding mountains following previous faulting and geologic activity. These sediments, known as the Santa Fe Group, are overlain in places by the 5.3 to 1.6-million-year-old Ortiz Gravel deposits. In certain places, the Rio Grande River and volcanic deposits are interspersed.

#### **3.5.2.2 Soils**

The dominant soils of Albuquerque Basin, in which Kirtland AFB is located, are well drained and loamy, with minor amounts of gravelly and stony soils along the mountains and arroyos. A variety of soil associations occur on Kirtland AFB including the: Bluepoint-Kokan association, Gila-Vinton-Brazito association, Madurez-Wink

association, Tijeras-Embudo association, Seis-Orthids association, and Kolob-Rock outcrop association.

#### 3.5.2.3 Proposed Action

The major soil types that occur in the general area of the Proposed Action are Silver and Witt soils, the Seis Complex, and the Seis-Silver Complex. These soils are deep and well drained, and are mildly to moderately alkaline with the Seis and Seis-Silver Complexes being strongly calcareous. Permeability is slow and available water capacity ranges from 11.5 to 12.5 inches for the Silver and Witt soils, while permeability is moderate and available water capacity ranges from 2.5 to 3 inches for the Seis-Silver Complex and Seis Complex. Run-off is medium to rapid and the hazard of water erosion and soil blowing ranges from moderate to severe.

The 1,000-foot replacement fencing that transects the upper northeast corner of Kirtland AFB would cross the Rock outcrop-Orthids complex. Much of the area is dominated by rocky outcrops but, in areas where soil is present, it tends to be shallow to moderately deep and well drained. Permeability is moderate with rapid runoff making the hazard of erosion moderate.

### 3.6 WATER RESOURCES

#### 3.6.1 Definition of Resource

Water resources include all surface and groundwater quality and their availability for human use located within the proposed project area and the watershed areas affected by existing and potential runoff, including an area's potential for flooding (100-year floodplains). Surface water resources comprise lakes, rivers and streams and are important for a variety of reasons, including economic, ecological, recreational, and human health. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential resource in many areas; groundwater is commonly used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition.

Other issues relevant to water resources include watershed areas affected by existing and potential runoff and hazards associated with 100-year floodplains. Floodplains are often belts of low, level ground present on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by floodwater. Inundation dangers associated with floodplains have prompted federal, state, and local legislation that limit development in these areas largely to recreation and preservation activities. The 100-year floodplain on Kirtland AFB is shown on Figure 3-5.

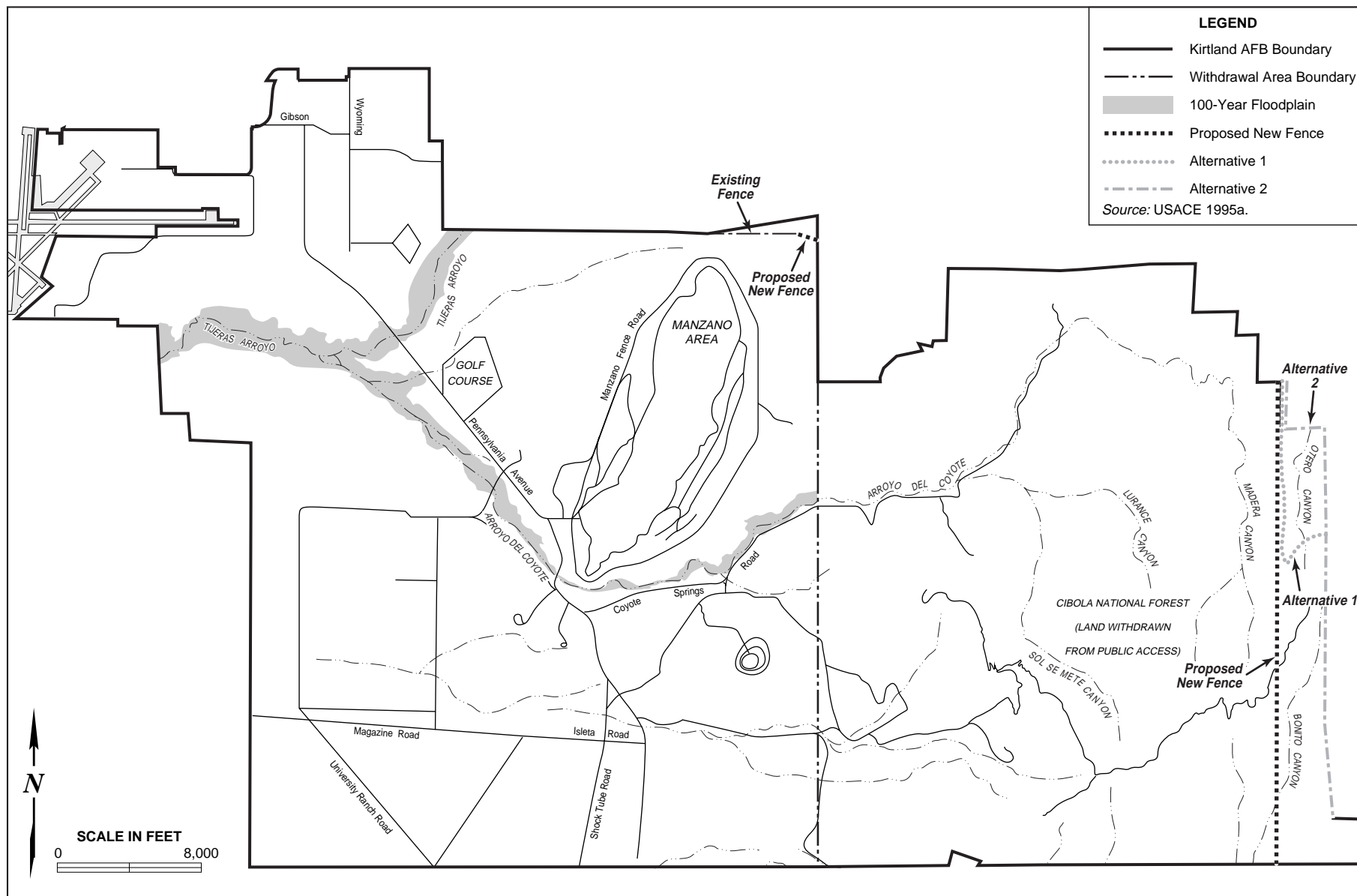
### **3.6.2 Existing Conditions**

#### **3.6.2.1 Surface Water**

The Rio Grande River is the major surface hydrologic feature in central New Mexico, flowing north to south through Albuquerque approximately 5 miles west of Kirtland AFB. Minor surface water bodies exist on the East Mesa as small wetlands, such as Coyote Springs and Sol se Mete Spring or as small reservoirs such as the ponds located at Tijeras Arroyo Golf Course. Two small springs, Sol se Mete and Lurance Springs, are located more than 1 mile west of the Proposed Action.

East Mesa surface water occurs in the form of storm water sheet flows that drain into small gullies when it rains. The primary surface channels that drain runoff from Kirtland AFB to the Rio Grande River are the Tijeras Arroyo and Arroyo del Coyote. These arroyos are both water-carved channels that are dry for most of the year. Precipitation reaches these arroyos through a series of storm drains, flood canals, and unnamed smaller arroyos. Surface water enters Tijeras Arroyo where it crosses the northeast corner of Kirtland AFB and then flows south of Albuquerque International Sunport, draining eventually into the Rio Grande River (USAF 1991). Arroyo del Coyote drains into Tijeras Arroyo approximately 1 mile west of the Tijeras Arroyo Golf Course and receives surface water from the eastern portion of the base and from the Manzanita Mountains.

Both Arroyo del Coyote and Tijeras Arroyo flow intermittently during heavy thunderstorms and spring snowmelt (US Army Corps of Engineers [USACE] 1979a). However, nearly 95 percent of the precipitation that flows through the Tijeras Arroyo evaporates before it reaches the Rio Grande River. The remaining 5 percent is equally



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100-Year Floodplain on Kirtland Air Force Base

FIGURE

3-5

divided between runoff and groundwater recharge (USAF 1991). The proposed eastern fence line crosses minor drainages but avoids larger waterways such as Otero Canyon.

#### 3.6.2.2 Floodplains

Flooding on Kirtland AFB generally occurs between May and October during high-intensity thunderstorms (USACE 1979b). Tijeras Arroyo and Arroyo del Coyote floods are characterized by high peak flows, small volumes, and short duration. Although flooding occurs infrequently, vegetation can encroach into these arroyos' channels, obstructing the flow of water, leading to flooding. A 100-year floodplain encompasses these arroyos and follows their path. Floodplain studies for the Withdrawal Area have not been conducted. However, due to the relatively steep terrain in the area of the Proposed Action, floodplains are not expected to occur.

#### 3.6.2.3 Groundwater

Kirtland AFB is located within the limits of the Rio Grande Underground Water Basin, which has been defined by the State of New Mexico as a natural resource area and has been designated as a "declared underground water basin." The state regulates it as a sole source of potable water. The average depth to groundwater beneath Kirtland AFB is 450 to 550 feet. The Rio Grande Basin's source of groundwater is the Santa Fe Aquifer, which Albuquerque relies on as its sole potable water source. The volume of recoverable fresh groundwater in the Rio Grande Basin is estimated at 2.3 billion-acre feet. Recharge of the Santa Fe Aquifer is most likely to occur east of the installation in the Manzanita Mountains where the sediment material favors rapid infiltration (USAF 1991).

### 3.7 BIOLOGICAL RESOURCES

#### 3.7.1 Definition of Resource

Biological resources include native or naturalized plants and animals and the habitats in which they occur, and native or introduced species found in landscaped or disturbed areas. Protected species are defined as those listed as threatened, endangered, or proposed or candidate for listing by the: US Fish and Wildlife Service (USFWS); New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD); and/or New Mexico Department of Game and Fish (NMDG&F). Federal species of concern,

formerly known as candidate category 2 species, are not protected by law; however, these species could become listed, and therefore are given consideration when addressing biological resource impacts of an action. The New Mexico Natural Heritage Program also maintains a listing of threatened or endangered species. NMEMNRD holds the responsibility for identifying and listing sensitive plant species considered in this analysis. Animal species of special concern to the NMDG&F are also considered.

Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the Endangered Species Act and sensitive ecological areas as designated by state or federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer/winter habitats).

Jurisdictional wetlands are those subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and EO 11990, *Protection of Wetlands*. Wetlands are defined by the USACE (Federal Register 1982) and EPA (Federal Register 1980) as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3(b), 1984).

### **3.7.2 Existing Conditions**

Kirtland AFB lies at the intersection of 4 major North American physiographic and biotic provinces: the Great Plains, Great Basin, Rocky Mountains, and Chihuahuan Desert. Vegetation and wildlife found within Kirtland AFB are influenced by each of these provinces, with the Great Basin being the most dominant.

#### **3.7.2.1 Vegetation**

The vegetation scheme at Kirtland AFB consists of six main plant communities: grassland, sagebrush steppe, juniper woodland, piñon-juniper, ponderosa, and riparian/wetland/arroyo. Transitional areas are found between these communities and contain a mixture of representative species from each bordering vegetation zone. The grassland and piñon-juniper are the dominant vegetative communities at Kirtland AFB. The riparian/wetland/arroyo community is confined to isolated areas inundated by surface

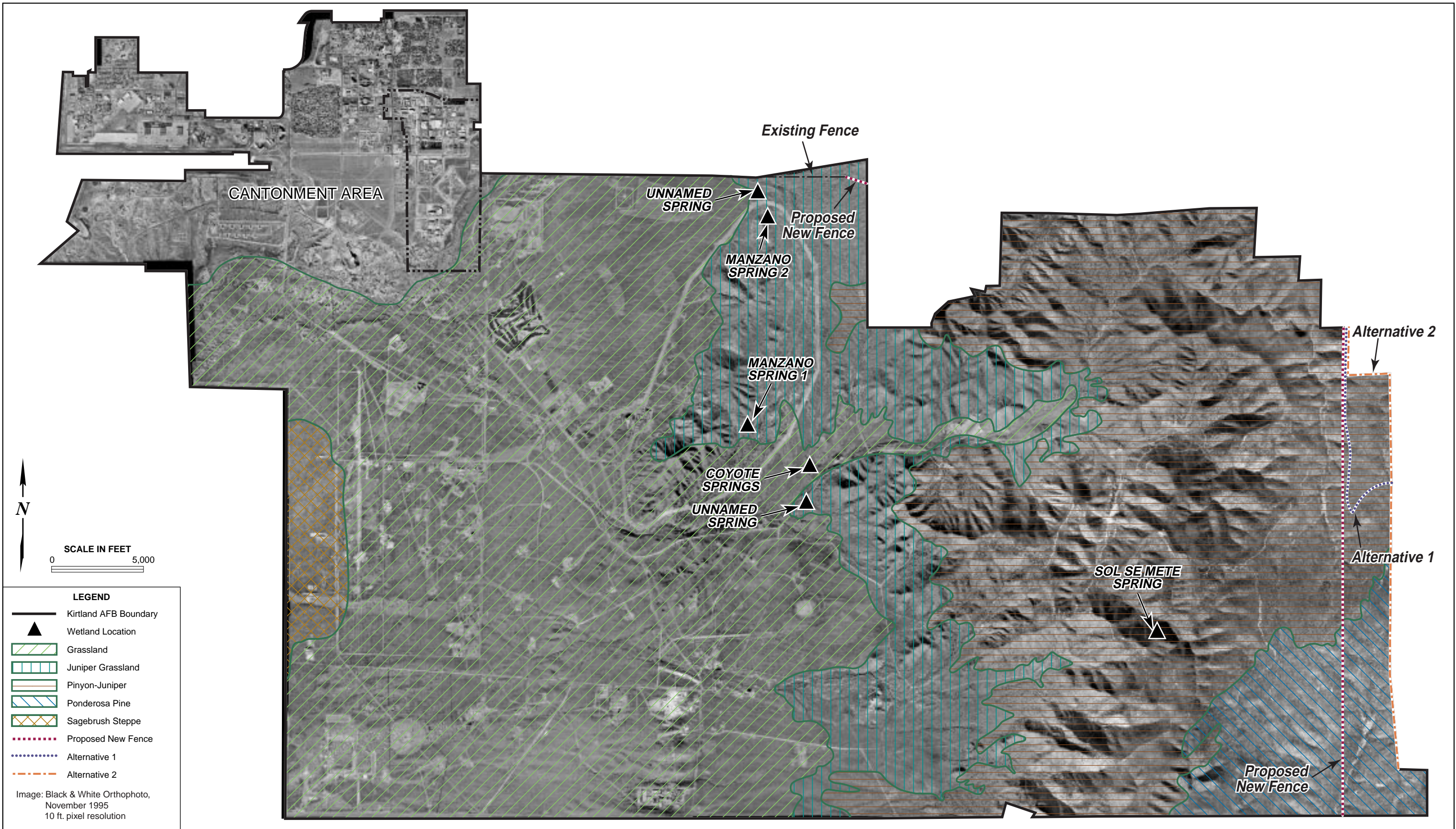
water during at least some part of the year. Native vegetation communities are shown in Figure 3-6. Vegetation located east of the Withdrawal Area has not been delineated but is the same as that found in the area of the Proposed Action. Neither the sagebrush steppe nor the grassland ecosystems will be discussed since they occur well outside of the area of the Proposed Action.

The 1,000-foot segment of replacement fence would be erected through the juniper woodland community. Vegetation generally consists of one-seeded juniper (*Juniperus monosperma*), black grama (*Bouteloua eripoda*), blue grama (*B. gracilis*), side-oats grama (*B. curtipendula*), bush muhly (*Muhlenbergia porteri*), plains prickly pear (*Opuntia polycantha*), wavy leaf oak (*Quercus undulata*), winter fat (*Eurotia lanata*), sand sagebrush (*Artemisia filifolia*), four-wing saltbrush (*Atriplex canescens*), as well as a variety of other forbs and grasses. Tree density in this community ranges from 21 to 60 square feet per acre (USDA 1996).

The dominant plant community surrounding the Proposed Action is the piñon-juniper woodland community. The piñon-juniper community ranges in elevation from 6,300 to 7,700 feet. This dominant plant community is composed of Colorado piñon pine (*Pinus edulis*) and one-seeded juniper with an understory of grasses and shrubs including blue grama, side oats grama, banana yucca (*Yucca baccata*), alderleaf mountain mahogany (*Cercocarpus mantanus*), and squawberry (*Rhus trilobata*). Gambel oak (*Quercus gambelli*) is also found in the piñon-juniper woodland and in north-facing canyons it can become codominate with the piñon pine creating isolated communities of pine-oak woodlands. The piñon-juniper woodland contains tree densities of 40 to 70 square feet per acre while pine-oak woodlands have densities of 50 to 90 square feet per acre (USDA 1996). The majority of the proposed eastern fence would be built through this type of vegetation.

Ponderosa pine (*Pinus ponderosa*) forests occur in the upper elevations, usually above 7,700 feet. A portion of the proposed fence would be built through this ecosystem. However, some ponderosa stands may be found at lower elevations especially in north-facing canyons. This community contains much of the same flora found in piñon-juniper woodland. Additional plant species include creeping barberry (*Berberis repens*), snowberry (*Symphoricarpus rotundifolius*), and New Mexican locust (*Robinia*





*newmexicana*), and Rocky Mountain juniper (*Juniperus scopulorum*). Tree density in the ponderosa pine community ranges from 90 to 120 square feet per acre (USDA 1996). The southern portion of the proposed east fence would dissect the ponderosa pine community.

The riparian/wetland/arroyo community consists of species that have a greater moisture requirement than species common to other communities. These plant associations are found along Tijeras Arroyo, Arroyo del Coyote, and the various springs found on Kirtland AFB, where sufficient moisture occurs during at least part of the year. Species associated with the riparian/wetland/arroyo community include salt-cedar (*Tamarix chinensis*), yerba mansa (*Anemopsis californica*), three-square bulrush (*Scirpus americanus*), and cattail (*Typha latifolia*).

Mountain meadow grasslands can be found in Bonito, David, and Madera Canyons as well as other isolated openings located near the Proposed Action. The proposed fence would not cross any of these important meadows.

Insects and disease are natural activities that degrade the forest health. Probably the most significant disease activity in the project area is that of dwarf mistletoe in the piñon pine and juniper species *Arceuthobium divaricatum* and *Phoradendron juniperinum*, respectively (USDA 1996). Bark beetles are becoming an increasing problem in the area due to the recent drought.

#### 3.7.2.2 Wetlands

The USACE Albuquerque District has prepared a map of Kirtland AFB showing known wetland locations, a description of waters of the US regulated pursuant to Section 404 of the CWA, and a restatement of the location of the 100-year floodplain determined in a 1979 study (USACE 1995). (Floodplains are discussed in Section 3.6, Water Resources). Two small wetlands are located approximately 1 mile west of the proposed fence located in the northeast corner of Kirtland AFB (refer to Figure 3-6).

#### 3.7.2.3 Wildlife

Wildlife communities potentially affected by the proposed fencing are typical of woodland habitats within the central New Mexico region. Common bird species found in



the juniper woodland association include the Mourning dove (*Zenaida macroura*), American crow (*Corvus brachythynchos*), northern mockingbird (*Mimus polyglottos*), curved billed thrasher (*Toxostoma curvirostre*), brown-head cowbird (*Molothrus ater*), black-throated sparrow (*Amphispiza bilineata*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and the great horned owl (*Bubo virginianus*). Mammals include the coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), silky pocket mouse (*Perognathus flavus*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), and the striped skunk (*Mephitis mephitis*). Amphibians and reptiles found in the juniper woodlands include New Mexico spadefoot toads (*Spea multiplicata*), whiptail lizards (*Cnemidophorus* spp.), coachwhip snake (*Masticophis flagellum*), and the western rattlesnake (*Crotalus viridis*).

Much of the wildlife found in the juniper woodlands also occur in the piñon-juniper woodland association. Additional bird species consist of the scrub jay (*Aphelocoma coerulescens*), white-breasted nuthatch (*Sitta carolinensis*), Downy woodpecker (*Picoides pubescens*), and sharp-shinned hawk (*Accipiter striatus*). Mammals known to inhabit the piñon-juniper community include the common porcupine (*Erethizon dorsatum*), black bear (*Ursus americanus*), rock squirrel (*Spermophilus variegatus*), and mountain lion (*Felis concolor*). Additional reptiles include the mountain patchnosed snake (*Salvadora grahamiae*) and the tree lizard (*Urosaurus ornatus*).

Animals found in the ponderosa pine forest are generally the same as those found in the piñon-juniper community. However, fewer reptile and amphibian species are found here. Cavity nesting birds such as the hairy woodpecker (*Picoides villosus*) may be more numerous.

The arroyo/wetland/riparian community at Kirtland AFB is generally inhabited by the same species found in the surrounding habitat, due to their relatively small size. Wetlands/arroyos that contain permanent or temporary pools provide breeding areas for the tiger salamander (*Ambystoma tigrinum*), red-spotted toad (*Bufo punctatus*), and woodhouse toad (*Bufo woodhousii*).

A locally important foraging and fawning area for mule deer is located in the Manzano Base area and extends into the north and west portions of the Withdrawal Area (Gustin 2003). Mule deer migrate through and inhabit this area for much of the year. The

Proposed Action does not transect this area except for the 1,000-foot segment of fence that would cross the northeast corner of Kirtland AFB.

#### 3.7.2.4 Threatened and Endangered Species

Thirty-two state and federally listed species could occur in Bernalillo County. Several state and federally listed species have the potential to occur on Kirtland AFB or within the Withdrawal Area. Federally threatened and endangered species are legally protected under the Endangered Species Act. In New Mexico, threatened and endangered animal species are protected by the New Mexico Wildlife Act. The NMEMNRD maintains listings of state threatened and endangered plants, which are protected under the New Mexico Endangered Plant Species Act. Table 3-6 lists special status species found in Bernalillo County and their potential for occurring on base or in the Withdrawal Area.

Of the seventeen species listed as threatened or endangered for Bernalillo County, seven of these species could not occur on Kirtland AFB or in the Withdrawal Area due to habitat restrictions. The federally endangered Rio Grande silvery minnow is found only within its critical habitat in the Rio Grande River. The state threatened neotrophic cormorant is attracted to large water bodies, such as Elephant Butte Reservoir in Sierra County, well south of Kirtland AFB (NMDG&F 2001). Farther to the north, the neotrophic cormorant is only found along the Rio Grande River. No large water bodies that could attract neotrophic cormorants are located near the Proposed Action. The state threatened common black-hawk occupies dense, well-developed riparian corridors along permanent streams and rivers (NMDG&F 2001). These habitats contain the necessary prey base to support this bird species. Surface drainages in the vicinity of the Proposed Action are sporadic and do not contain water year round; therefore, well-developed riparian areas do not occur in the proposed project areas. The Bell's vireo a state threatened bird, prefers riparian habitats similar to that of the common black-hawk. This species prefers dense riparian corridors along permanent grassland streams (NMDG&F 2001). Permanent streams are not present within the grasslands at Kirtland AFB. Lack of adequate riparian habitat also prevents the federally endangered southwestern willow flycatcher in the area. During a survey for southwestern willow flycatchers conducted in 1994 to 1996, this species was discovered in riparian habitat along the Rio Grande River near Albuquerque, but not at Kirtland AFB (USAF 1998b).

**Table 3-6. Special Status Species, Bernalillo County**

Common Name	Scientific Name	Status	Occurrence at Kirtland AFB	Occurrence Within Withdrawal Area	Habitat	Season	Behavior
<b>FISH</b>							
Rio Grande silvery minnow	<i>Hybognathus amarus</i>	FE, SE, PCH	No	No	AQ	AY	Breeds
<b>REPTILES</b>							
Texas horned lizard	<i>Phrynosoma cornutum</i>	FSC	Potential	Potential	G, PJ	AY	Breeds
<b>BIRDS</b>							
Neotrophic cormorant	<i>Phalacrocorax brasilianus</i>	ST	No	No	R, AQ	SP, SM	Breeds
White-faced ibis	<i>Plegadis chihi</i>	FSC	No	No			
Bald eagle	<i>Haliaeetus leucocephalus</i>	FT, ST	Potential	Potential	G, PJ, P	SP, F	Transient
Northern goshawk	<i>Accipiter gentilis</i>	FSC	No	Potential	PJ, P	SP, SM, F	Transient, breeds in summer
Common black-hawk	<i>Buteogallus anthracinus</i>	ST	No	No	R	SM	Breeds
Ferruginous hawk	<i>Buteo regalis</i>	FSC	Potential	Potential	G, PJ, P		
Whooping crane	<i>Grus americana</i>	FE, SE	No	No	G, R, AQ	W	Transient
Black tern	<i>Chlidonias niger surinamensis</i>	FSC	No	No			
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	FSC	Yes	Yes	G, PJ	SP, SM, F	Transient, nest in summer
Mexican spotted owl	<i>Strix occidentalis lucida</i>	FT, CH	Potential	Potential	PJ, P	AY	Transient, breeds in summer
White-eared hummingbird	<i>Hylocharis leucotis borealis</i>	ST	No	Potential	P	SM	Transient
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE, SE, CH	No	No	R	SP, SM, F	Breeds
Loggerhead shrike	<i>Lanius ludovicianus</i>	FSC	Yes	Yes	G, PJ, R	AY	Transient, nests in summer, winter resident
American peregrine falcon	<i>Falco peregrinus anatum</i>	ST	Potential	Potential	G, PJ, P	SP, SM, F	Transient
Bell's vireo	<i>Vireo bellii</i>	ST	No	No	R	SM	Breeds
Gray vireo	<i>Vireo vicinior</i>	ST	Potential	Yes	PJ	SP, SM	Transient, breeds in summer
Baird's sparrow	<i>Ammodramus bairdii</i>	ST	Potential	No	G, PJ	F	Transient

**Table 3-6. Special Status Species, Bernalillo County (continued)**

Common Name	Scientific Name	Status	Occurrence at Kirtland AFB	Occurrence Within Withdrawal Area	Habitat	Season	Behavior
<b>MAMMALS</b>							
Black-footed ferret	<i>Mustela nigripes</i>	FE	No	No	G, PJ	AY	Breeds
Spotted bat	<i>Euderma maculatum</i>	ST	No	Potential	R, PJ, P	SM	Transient
Western small-footed myotis bat	<i>Myotis ciliolabrum melanorhinus</i>	FSC	No	Potential	R	SM	Breeds
Yuma myotis bat	<i>Myotis yumanensis yumanensis</i>	FSC	No	No			
Occult little brown myotis bat	<i>Myotis lucifugus occultus</i>	FSC	No	No			
Long-legged myotis bat	<i>Myotis volans interior</i>	FSC	No	Potential	PJ, P	SM	Breeds
Fringed myotis bat	<i>Myotis thysanodes</i>	FSC	No	No			
Pale Townsend's big-eared bat	<i>Plecoyus townsendii pallescens</i>	FSC	No	No			
Big free-tailed bat	<i>Nyctinomops macrotis</i>	FSC	No	No			
Arizona black-tailed prairie dog	<i>Cynomys ludoficianus arizonicus</i>	C	No	No	G, PJ		
Pecos River muskrat	<i>Ondatra zibethicus ripensis</i>	FSC	No	No			
New Mexican jumping mouse	<i>Zapus hudsonius luteus</i>	ST	Potential	No	R	AY	Breeds
<b>PLANTS</b>							
Great Plains ladies'-tresses orchid	<i>Spiranthes magnicamporum</i>	SE	No	Potential	R, PJ	AY	Grows

**Sources:** New Mexico Department of Game and Fish 1999; 2002, New Mexico Natural Heritage Program 2002, US Fish and Wildlife Service 2003.

**Notes:**

FE = Federal Endangered  
 FT = Federal Threatened  
 C = Federal Candidate  
 SE = State Endangered  
 AY = All Year

ST = State Threatened  
 FSC = Federal Species of Concern  
 PCH = Proposed Critical Habitat  
 CH = Critical Habitat

G = Grassland  
 PJ = piñon/Juniper  
 P = Ponderosa  
 R = Riparian

AQ = Aquatic  
 SP = Spring  
 SM = Summer  
 F = Fall

The remaining two of the seven species that could not occur on Kirtland AFB due to habitat restrictions are the whooping crane and the black-footed ferret. The federally endangered whooping crane is only known in New Mexico from three experimental populations. The populations that migrate through New Mexico primarily travel to the shores of the Gulf of Mexico (NMDG&F 2001). These birds are known to frequent riparian and aquatic habitats along the Rio Grande River, but are not known to occur in the Manzanita Mountains. The federally endangered black-footed ferret could occur within a 50-mile radius of Kirtland AFB, but it has never been reported in the area

(USAF 1991). This species is presumed to be extirpated from Bernalillo County (NMDG&F 2001).

Two federal species of concern are known to occur at Kirtland AFB and the Withdrawal Area. The western burrowing owl inhabits the disturbed grasslands at Kirtland AFB and is typically associated with Gunnison's prairie dog towns. Burrowing owl habitat does not occur near the Proposed Action. The loggerhead shrike, another federal species of concern, is also commonly observed throughout Kirtland AFB grasslands and may be found occasionally in the juniper woodland association. It is a year-round resident and has been known to nest in the Withdrawal Area (USDA 1996). The loggerhead shrike has the potential to be found near the segment of fence proposed for construction in the northeast corner of Kirtland AFB.

Nine of the threatened or endangered species listed for Bernalillo County occur, or have the potential to occur, at Kirtland AFB or in the Withdrawal Area. These species are: the bald eagle, Mexican spotted owl, American peregrine falcon, white-eared hummingbird, gray vireo, Baird's sparrow, spotted bat, New Mexican jumping mouse, and the Great Plains ladies'-tresses orchid. Much of the Withdrawal Area is being proposed as critical habitat for the Mexican spotted owl (USFWS 2003). Further information on this and other species can be found in the Kirtland AFB Southern Perimeter Fence EA, Final December, 2002.

### **3.8 TRANSPORTATION AND CIRCULATION**

#### **3.8.1 Definition of Resource**

Transportation and circulation refer to the movement of vehicles throughout a roadway network. Roadway operating conditions and the capacity of the system to accommodate vehicles can be described in terms of volume-to-capacity (V/C) ratio, which is a comparison of average daily traffic (ADT) volume to roadway capacity and the V/C ratio corresponds to a Level of Service (LOS) rating. Because of the location of the Proposed Action, V/C, and LOS ratings are not discussed.

### **3.8.2 Existing Conditions**

The Proposed Action would occur ½ mile west of the eastern boundary of the Withdrawal Area, and at the northeast corner of Kirtland AFB and there are few roads in these areas (Figure 3-7). Patrol roads on Kirtland AFB would be used to access the northern fence boundary. FR 530 is the only road that crosses the eastern boundary of the installation. The existing East Gate is located approximately ¼ mile directly west of the installation boundary, about ½ mile by road. This gate is only used for security patrols and USFS access for fire fighting when needed. No other vehicle traffic is allowed through the gate, so there is very little traffic in the vicinity. Construction vehicles including trucks may use Highway 337 to get to the base's East Gate. ADT (weekday) volumes in the project area include roads on base and roads/highways adjacent to the base in rural Bernalillo County. The major roads or highways include Interstate 40 and Highway 337. Because roads are seldom used in the Withdrawal Area, ADT volumes are not calculated. ADT volumes range from 44,800 on Interstate 40 to 6,900 on Highway 337. This would not result in additional traffic or congestion problems. Figure 3-8 for 2001 traffic flows in the area of the Proposed Action.

#### **3.8.2.1 Circulation at Kirtland AFB and Access Gates**

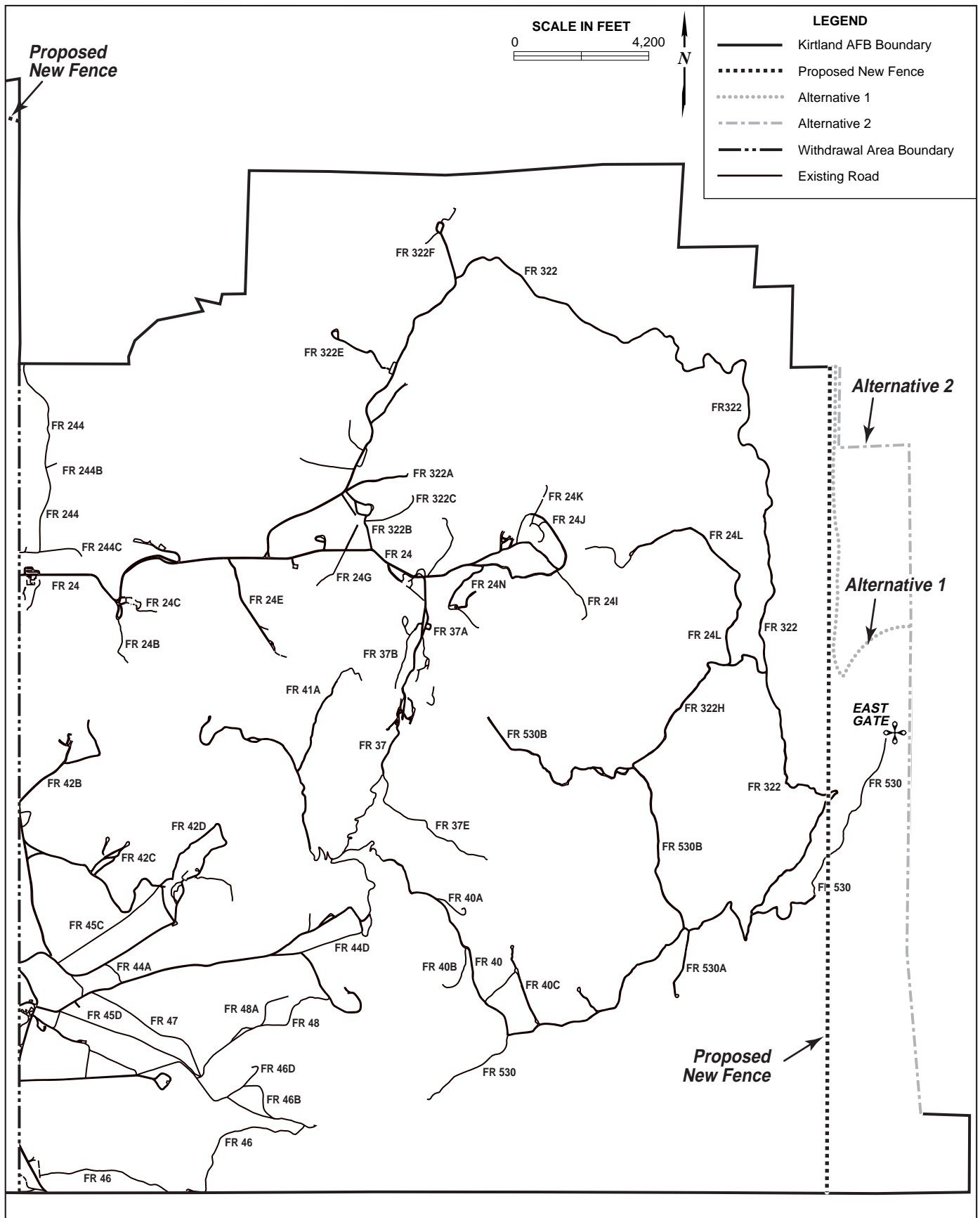
Traffic in the vicinity of the East Gate is confined to occasional security or fire patrols. The East Gate may be used for access for construction equipment.

### **3.9 VISUAL RESOURCES**

#### **3.9.1 Definition of Resource**

Visual resources are defined as the natural and manufactured features that constitute the aesthetic qualities of an area. These features form the overall impression that an observer receives of an area (i.e. its landscape character). An area's susceptibility to visual impacts is related to visual sensitivity. Highly sensitive resources include national parks, recreation areas, historic sites, wild and scenic rivers, designated scenic roads and other areas specifically noted for aesthetic qualities.





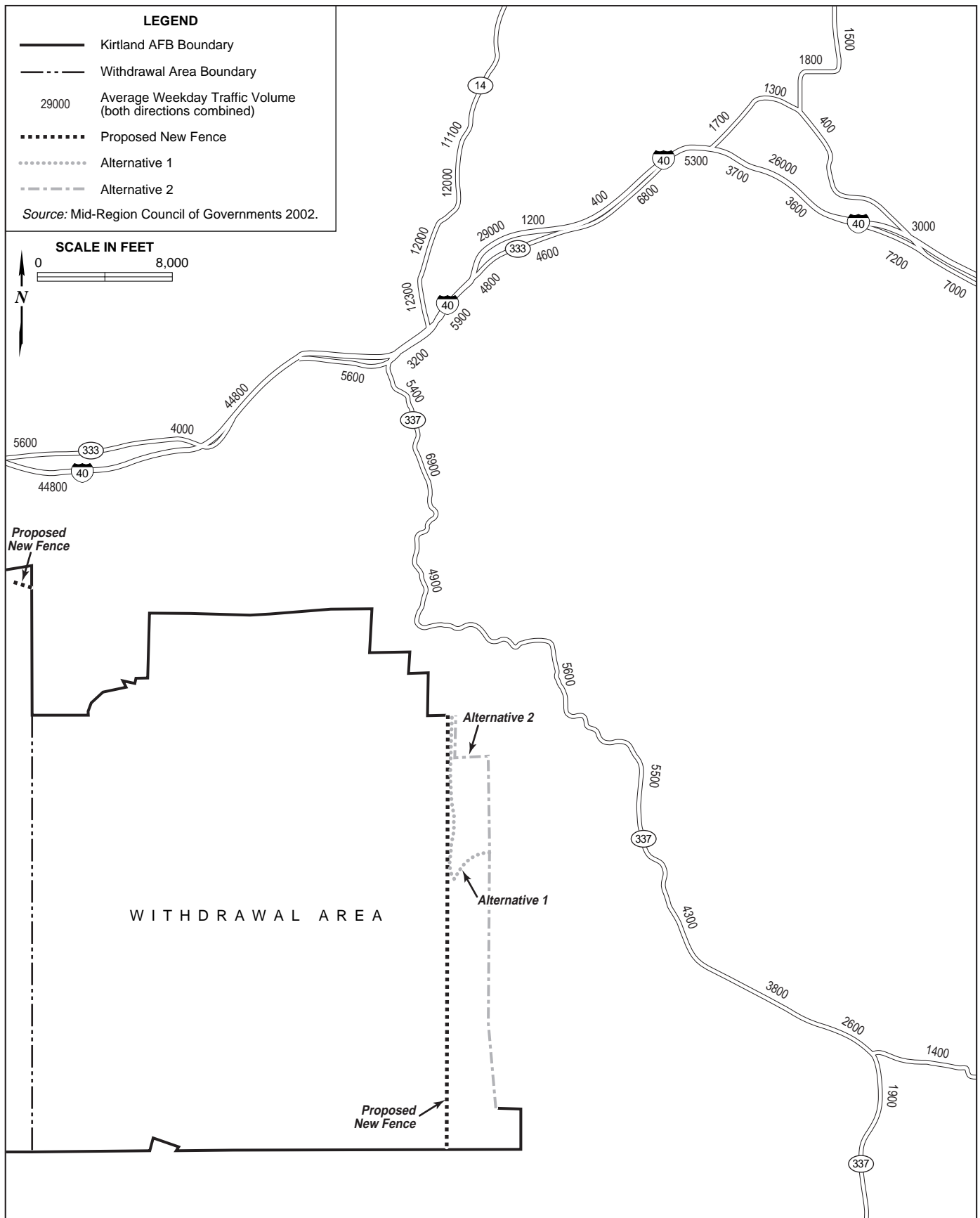
JAN 2004

FIGURE

EA

Existing Roadways in the Withdrawal Area  
at Kirtland Air Force Base

3-7



JAN 2004

FIGURE

EA

2001 Traffic Flows in Rural Bernalillo County Near  
Proposed Fence Line

3-8

### **3.9.2 Existing Conditions**

The visual environment at Kirtland AFB is characteristic of military and civilian airfields. Structures include hangars, maintenance and support facilities and navigational equipment. The area surrounding the installation varies from urban to rural and open rangeland. The areas to the northeast and east of Kirtland AFB are mostly rural and Cibola National Forest lands that include recreational areas and open space. South of the installation, the Isleta Pueblo lands are generally open space, forests or vacant land. Views along the northern perimeter fence area are of rural and open space. The proposed project sites along the eastern perimeters are rural, open space, mountainous and forested with small openings along some valleys or on top of mesas and buttes. According to the Forest Service's Visual Management System, most of the area along the eastern project site is classified as sensitivity level 1 because it is on lands jointly managed by the DoD and USFS (USDA 1996). Level 1 is the highest sensitivity area and there is a concern for scenic quality.

Legislation pertaining to visual resources includes the Federal Highway Beautification Act of 1965, the Wilderness Act of 1964, the Wild and Scenic Rivers Act of 1968, the National Trails System Act of 1968, and the Surface Mining Control and Reclamation Act of 1977.

## **3.10 CULTURAL RESOURCES**

### **3.10.1 Definition of Resource**

Historic properties (i.e. significant cultural resources) are classified as buildings, sites, districts, structures, or objects. A building is created to shelter any form of human activity. A structure is distinguished from a building in that it is a construction designed for purposes other than creating human shelter. Objects are constructions that are primarily artistic in nature or are relatively small and simply constructed. A site is the location of a significant event, a prehistoric or historic activity, or a building or structure whose location possesses value. A district is a concentration or linkage of sites, buildings, structures, or objects that are united historically or aesthetically by plan or development.

The criteria for establishing significance are set forth in Title 36 CFR Part 60.4. Procedures for the application of the National Register criteria for evaluation are found in various National Park Service bulletins. These bulletins provide guidelines so that decisions concerning significance, integrity, and treatment can be reliably made.

### **3.10.2 Existing Conditions**

Records available through the New Mexico Cultural Resources Inventory System administered by the Archaeological Resources Management Section were queried for current information regarding previous studies and known cultural resources within the Withdrawal Area. Also, a review of the records available at the Cibola National Forest offices in Albuquerque was completed to identify studies and resources within or near the Proposed Action and the Alternatives.

Under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, the USAF is required to assess the effects of undertakings prior to their initiation to ensure that there will be no adverse effects on historic properties (36 CFR 800). Section 110 of the NHPA requires the USAF to complete an inventory of historic properties located on its land (36 CFR 60, 63, 78, 79, and 800).

Gallison et al. (2003) completed a survey along the boundary of the Withdrawal Area and approximately 2 miles west of the boundary. The results of this survey found 44 archaeological sites within 1 mile of the Proposed Action. Of the 44 sites, 37 have been recommended to the National Register of Historic Places, 5 are recommended not eligible and 2 are recommended eligible.

## **3.11 SOCIOECONOMICS**

### **3.11.1 Definition of Resource**

Socioeconomics are defined as the basic attributes and resources associated with the human environment. A Region of Influence (ROI) is defined as the geographic area or region, wherein the project-induced changes to the socioeconomic environment would occur (Canter 1996). The ROI for the Proposed Action is Bernalillo County. Socioeconomic activity can encompass many areas such as population trends, economic history, employment, income levels, land-use patterns, land values, tax levels, housing

characteristics, public services (i.e. law enforcement, utilities, fire protection), educational resources, transportation systems, community attitudes and lifestyles, recreation and tourism, and areas of unique significance. Only those socioeconomic components that would experience site specific environmental changes are included in this section.

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued to focus attention of federal agencies on human health and environmental conditions in minority and low-income communities and to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed. The Presidential Memorandum that accompanied EO 12898 states that federal agencies “shall analyze the environmental effects, including human health, economic and social effects of federal actions including effects on minority and low-income populations.” To provide a thorough environmental justice evaluation, particular attention is given to the distribution of race and poverty status in areas potentially affected by implementation of the Proposed Action.

### **3.11.2 Existing Conditions**

New Mexico and the ROI represent a diverse economy. Nonagricultural employment and the transportation and services industries represent the largest growth sector in New Mexico and in the ROI. Also, tourism has become one of New Mexico’s largest industries. According to the Tourism Association of New Mexico, tourism is a \$3.9 billion industry. Major employers within the ROI include the state’s largest university, as well as medical and government facilities.

#### **3.11.2.1 Population (including minorities)**

The ROI had an estimated population of 570,000 in 2002 (US Census Bureau 2003a). This was a 1 percent increase from 2001.

According to the US Census Bureau’s 2002 American Community Survey Profile, the Hispanic or Latino (of any race) population accounted for 43 percent of the population, the non-Hispanic white population accounted for 47 percent of the population. The Black or African American population accounted for 2 percent of the total population, the

American Indian or Alaskan Native population accounted for 4 percent of the total population, the Asian population accounted for 2 percent, native Hawaiian and other Pacific Islanders .08 percent, some other race accounted for .01 percent and the population consisting of two or more races accounted for 2 percent (US Census Bureau 2003b).

#### 3.11.2.2 Economy within ROI

Kirtland AFB plays an important role in the economy of the Albuquerque metropolitan area and the entire ROI, being the largest employer in New Mexico. Kirtland AFB had approximately 24,000 employees in fiscal year (FY) 2002 (USAF 2002). The goods and services purchased by base employees in the local area create secondary jobs and wages, further adding to its total economic importance to the local area. The economic contribution of Kirtland AFB to the Albuquerque area in FY 2002 was estimated at \$3.9 billion (USAF 2002).

The State of New Mexico ranks 48th among the states in terms of per capita income. In 2001, New Mexico's per capita income was \$23,155 and in 2000 it was \$21,827. In Bernalillo County the personal per capita income was \$27,253 (New Mexico Department of Labor 2003). Annual average unemployment rates in 2000 and 2001 within the ROI were at 3 percent, and 3.4 percent. Table 3-7 shows nonagricultural employment within the US, New Mexico, and the Albuquerque MSA (including Bernalillo County).

#### 3.11.2.3 Housing

The ROI housing units in 2002 consisted of 248,663 housing units with 227,536 occupied units and 21,127 vacant units (US Census Bureau 2003b). The home ownership rate in the ROI in 2000 was 64 percent, (US Census Bureau 2003c).

**Table 3-7. Nonagricultural Employment in the United States, New Mexico, and the Albuquerque MSA, 2001**

Industry	United States		New Mexico		Albuquerque MSA	
	2001 Annual Average*	Percent of Total	2001 Annual Average	Percent of Total	2001 Annual Average	Percent of Total
Total Nonagricultural Employment	132,212	100.0	756,800	100.0	359,200	100.0
Manufacturing	17,698	13.4	43,100	5.7	24,200	6.7
Mining	563	0.4	16,200	2.1	100	0.0
Construction	6,861	5.2	45,900	6.1	28,300	7.9
Transportation & Public Utilities	7,070	5.3	37,300	4.9	19,900	5.5
Wholesale & Retail Trade	30,502	23.1	173,700	23.0	83,600	23.3
Finance Insurance and Real Estate	7,623	5.8	32,600	4.3	19,500	5.4
Services & Miscellaneous	41,023	31.0	222,200	29.4	114,900	32.0
Government	20,873	15.8	185,800	24.6	68,800	19.2

**Source:** New Mexico Department of Labor 2003.

**Note:** 2001 preliminary figures. Due to rounding, detail may not sum to total.

#### 3.11.2.4 Kirtland AFB

Kirtland AFB expenditures in FY 2001, including payroll, totaled over \$3.0 billion. Total economic impact from the annual operating expenditures from Kirtland AFB was estimated to be over \$3.9 billion. Table 3-8 provides additional information relating to the economic impact of Kirtland AFB activities on the local community (USAF 2002).

Employment at Kirtland AFB totaled 24,000 at the end of FY 2002. The DoD work force reached 5,500, of which 4,500 employees were active duty military, 1,060 reserve, and Air National Guard personnel. Federal civilian employees including contract civilians included 14,700 by the end of FY 2002.

**Table 3-8. Local Economic Impact, Kirtland AFB, 2002**

<b>Category</b>	<b>Amount</b>
<b>PAYROLL</b>	
Military payroll	\$235,463,012
Appropriated Fund Civilian payroll	\$265,427,932
Other Civilian/contractor payroll	<u>1,546,376,431</u>
<b>TOTAL ANNUAL PAYROLL</b>	<b>\$2,047,267,375</b>
<b>ANNUAL EXPENDITURES IN THE LOCAL COMMUNITY</b>	
Construction projects	\$183,405,714
Service contracts	\$357,840,861
Local Purchases	<u>\$507,617,204</u>
<b>TOTAL NON-PAY</b>	<b>\$1,048,863,779</b>
<b>TOTAL EXPENDITURES</b>	<b>\$3,096,131,154</b>
<b>TOTAL ESTIMATED ANNUAL DOLLAR VALUE OF JOBS CREATED</b>	<b>\$894,030,676</b>
<b>TOTAL ANNUAL ECONOMIC IMPACT ESTIMATE</b>	
	<b>\$3,990,161,830</b>

Source: United States Air Force 2002

By the end of FY 2003, an estimated 1009 military personnel (both active duty and guard/reserve) were living in family housing at Kirtland AFB, and approximately 4,500 military personnel were living off base.

### 3.11.2.5 Recreation/Tourism

According to the Forest Service's National Visitor Use Results Survey, approximately 54 percent of visitors on the Cibola National Forest used designated areas to hike, bike, or use horseback trails in the forest. Some activities that have a high percentage of visitors include camping (38 percent), viewing of wildlife (56 percent), viewing of natural features/scenery (62 percent), and hiking or walking (52 percent). Businesses in the area include restaurants, gas stations, retail stores, and general stores along Highways 14 and 66. Cibola National Forest is a popular tourist destination. In 2000, there were an estimated 2.88 million (18.75 error rate) national forest visits, 3.17 million (17.90 error rate) site visits, and 707,858 (37.43 error rate) wilderness visits to Cibola National Forest (USDA Forest Service 2001). According to the 2001 Forest Service Study, wilderness visitors to Cibola National Forest spent an average of \$14 each within 50 miles of the wilderness and spent an average of \$828 annually on all outdoor recreation related



expenditures. Cibola National Forest Expenditures within 50 miles of recreation sites are shown in Table 3-9.

**Table 3-9. Average per person expenditures within 50 miles of recreation site for wilderness visitors to Cibola National Forest**

<b>Type of Expenditures</b>	<b>Average expenditure (\$)</b>
Government owned lodging	0.43
Privately owned lodging	2.17
Food/drink at restaurants and bars	4.26
Other food and beverages	1.45
Gasoline and oil	2.47
Other transportation (plane, bus, etc.)	2.07
Activities (including guide fees and equipment rental)	0.00
Entry, parking, or recreation use fees	1.16
Souvenirs/clothing	0.69
Other expenses	0.00

Source: US Department of Agriculture Forest Service 2001.

### **3.11.3 Environmental Justice Considerations**

According to the Federal Interagency Working Group on Environmental Justice, “adverse environmental impacts are defined as having a negative impact or effect on human health or the environment that is significant, unacceptable or above generally accepted norms. Adverse environmental effects may include ecological, cultural, human health, economic, or social impacts when interrelated to impacts on the natural or physical environment.”

This section provides information on minority and low-income populations throughout the ROI. An environmental justice analysis would need to be conducted if there is an adverse environmental impact as a result of the Proposed Action.

#### **3.11.3.1 Low-Income Population**

In 2000, persons with low incomes were not nearly as prevalent throughout the ROI as were minority persons. Poverty levels for the ROI in 2000 were at 10.2 percent (families) and 13.7 percent (individuals). The most notable socioeconomic characteristic of the Indian communities is the large number of low-income persons. For comparison,

the Isleta Pueblo within the ROI had 36.2 percent of its family population at poverty level and 38.5 percent of individuals at or below poverty level.

### **3.12 ENVIRONMENTAL MANAGEMENT**

#### **3.12.1 Definition of Activity**

Environmental management activities at Kirtland AFB include the treatment and/or disposal of sanitary sewage, municipal solid waste, and industrial waste, including hazardous waste. In addition to the activities related to currently generated waste, the Installation Restoration Program (IRP) is intended to identify, confirm, quantify, and remediate problems caused by past management of hazardous wastes at USAF facilities.

Hazardous wastes are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes, that pose a substantial present, or potential, hazard to human health or the environment.

To protect people and habitats from inadvertent and potentially harmful releases of hazardous substances, DoD has dictated that all facilities develop and implement Hazardous Waste Management Plans and/or Spill Prevention, Control, and Countermeasure Plans. Also, DoD has developed the IRP, intended to facilitate thorough investigation and cleanup of contaminated sites located at military installations. These plans and programs, in addition to established legislation (e.g., the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] of 1980) are intended to protect human health and the ecosystems on which living organisms depend.

#### **3.12.2 Existing Conditions**

A preliminary assessment consisting of a file search and on-site personnel interviews was conducted in the fall of 2001 to identify historical ranges. Several historical ranges were identified within the Withdrawal Area (refer to Figure 3-2). The largest site identified, referred to as the Proximity Fuse Range, encompasses approximately 7,000 acres, much of which lies within the Withdrawal Area and extends to the eastern boundary. UXO has been observed in several portions of the Proximity Fuse Range. Kirtland AFB is awaiting funding to investigate the ranges for the presence of UXO and possible soil and groundwater contamination. Kirtland AFB would then seek funding for any needed

remediation activities. Kirtland AFB personnel would be required to do a survey for UXO prior to any ground disturbing activities in the areas where the proposed fence is to be constructed.

### 3.12.2.1 Solid Waste

Solid municipal waste generated by commercial activities and housing on base is sent to Waste Management of New Mexico sites off base. These sites include Rio Rancho and Torrance County facilities. Waste generated by construction and demolition activities are taken to the Kirtland AFB Landfill. The estimated rate of landfill waste generated on Kirtland AFB is shown in Table 3-10. All solid wastes are disposed of in accordance with USAF, Kirtland AFB, and applicable federal, state, and local regulations.

**Table 3-10. Estimates of Solid Waste Generated by Kirtland AFB (in tons)**

Year	Waste Generated by Commercial Activities <sup>a</sup>	Waste Generated by Housing on Base <sup>b</sup>	Waste Generated by Construction and Demolition <sup>c</sup>
1996	3,583	1,677	90,729
1997	4,362	2,318	40,848
1998	4,213	2,180	43,650
1999	3,783	1,863	36,699
2000	4,087	1,644	46,298
2001	3,766	1,403	53,075
2002	3,638	1,177	3,190

Source: Kitt 2003.

Notes: <sup>a</sup> sent to Waste Management facilities at Rio Rancho and Torrance County.

<sup>b</sup> sent to Rio Rancho Waste Management facility

<sup>c</sup> waste sent to Kirtland AFB landfill

### 3.12.2.2 Wastewater

Kirtland AFB does not have separate industrial and municipal wastewater systems. The City of Albuquerque treats all of the sanitary sewage produced by Kirtland AFB. By the end of 2001, the base contributed 2.5 million gallons-per-day of wastewater to the city facility (USAF 2002). An industrial pretreatment program administered by the City of Albuquerque regulates industrial discharges from the base to sewer lines. A City of Albuquerque Wastewater Permit was reissued to Kirtland AFB in 2001 under the Sewer Usage and Wastewater Control Ordinance, bringing the base's total number of wastewater permits issued by the city to four. Kirtland AFB's permits are issued by the City of Albuquerque's publicly owned treatment works, which is currently regulated by a National Pollutant Discharge Elimination System (NPDES) Permit. Four manholes

located on the base are used for monitoring the discharged water quality (USAF 1990). Kirtland AFB does not have an NPDES industrial discharge permit.

#### 3.12.2.3 Hazardous Wastes

A number of potentially hazardous wastes are used and stored at Kirtland AFB. An annually updated management plan is followed for the collection, storage, and disposal of hazardous waste in accordance with applicable federal, state, and local standards. Special guidance documents are followed for the disposal of asbestos, hydrazine, and radioactive materials, and for the prevention of spills (USAF 1990).

Hazardous wastes generated at Kirtland AFB are associated with operation of industrial shops and research and development laboratories, pesticide and herbicide application, radiological testing, fire control training, and fuel management. Wastes generated by these activities vary from year to year, depending on research activities and mission assignments. Hazardous wastes generated at the base include petroleum, oil and lubricants, acids and bases, non-halogenated and halogenated solvents, and organic compounds. Hazardous wastes that are recycled include surplus chemicals such as halogenated solvents and silver-bearing photographic materials.

Kirtland AFB operates as a large-quantity generator of hazardous waste and as a treatment, storage, and disposal facility. A Resource Conservation and Recovery Act Part B Permit issued by the State of New Mexico to Kirtland AFB, regulates the collection and storage of hazardous waste. Hazardous waste collection and storage sites are operated by the Defense Reutilization and Marketing Office, which arranges off-site disposal of the waste. Some wastes are collected by outside contractors at designated collection points. Photographic laboratory wastes are discharged to sanitary sewers following silver recovery and neutralization. Asbestos and asbestos-containing materials found in numerous buildings at the base are handled in accordance with the Kirtland AFB Asbestos Management Plan (USAF undated).

The IRP at Kirtland AFB forms the basis for assessment and response action under the provisions of CERCLA. As of March 2002, 77 IRP sites and 15 Areas of Concern had been identified at the base (Sillerud 2002). The only sites that are of concern to the Proposed Action examined in this document consist of individual UXO from the Proximity Fuse Range testing that occurred during World War II. Kirtland AFB is

awaiting funding to investigate the ranges for the presence of UXO and possible soil and groundwater contamination and to determine any needed remediation activities. In the interim, the construction contractor would be required to do a survey for UXO prior to any ground disturbing activities in the area where the proposed fence would be constructed.

## **SECTION 4**

### **ENVIRONMENTAL CONSEQUENCES**

#### **4.1 HUMAN HEALTH AND SAFETY**

##### **4.1.1 Significance Criteria**

An impact to safety would be considered significant if implementation of the proposed action would substantially increase risks associated with mishap potential or safety relevant to the public or the environment. For example, if implementation of a proposed action would render existing base facilities incompatible with safety criteria (e.g., runway protection zones [RPZs] or explosive safety zones), safety impacts would be considered significant.

An impact to children from environmental health risks and safety risks would be considered significant if a proposed action would result in a disproportionate adverse impact to the health or safety of children.

##### **4.1.2 Impacts**

Changes in safety resulting from the Proposed Action were quantified by examining the project site in relation to the RPZs and explosive safety zones present on the base. Encroachment on these zones was assessed compared with the risk of the action involved. Changes in the safety and security of personnel working on base that would result from the Proposed Action and Alternatives were also assessed as a part of this analysis.

Analysis of potential impacts to children included: 1) identification and description of hazards that could potentially affect children; 2) examination of the Proposed Action and Alternatives and the potential effect these proposals could have on children; and 3) assessment of the significance of potential impacts.

###### **4.1.2.1 Proposed Action**

Implementation of the Proposed Action would have a minor beneficial impact on the current health and safety environment at Kirtland Air Force Base (AFB) due to the increase in security on the base and the exclusion of unauthorized personnel from areas of

the base where testing and training occur. The areas proposed for return to United States Forest Service (USFS) control would be surveyed for unexploded ordnance (UXO) and any UXO found would be removed or destroyed before the property could be turned back to the USFS for use. Signs would be placed at the current border warning of the UXO until such time as the clean up was complete.

Contractor personnel would be responsible for complying with all applicable occupational health and safety regulations and would be required to conduct construction activities in a manner that would not pose any risks to personnel at or near the construction site. To insure the safety of contractor personnel, an Explosive Ordnance Disposal (EOD) survey and clearance would be conducted to remove any UXO from the specific area of the proposed eastern fence line construction.

The Proposed Action does not encroach upon explosive safety zones or any RPZ so these areas would not be affected by the Proposed Action.

There would be no disproportionate increase in environmental health and safety risks to children from the Proposed Action, because children would not be present in the construction area. The increased security resulting from the fence would benefit children on base. The fence would prevent children from entering the base from the eastern border and encountering hazards inherent in the testing and training activities that occur in the area. Therefore, possible disproportionate negative impacts to children identified in Executive Order (EO) 13045, *Protection of Children from Environmental Health and Safety Risks*, would not occur.

#### 4.1.2.2 Alternative 1

Implementation of Alternative 1 would have the same minor beneficial impacts on human health and safety at Kirtland AFB as those stated for the Proposed Action. There would be an increase in security and safety on the base from fencing the boundary of the base that is hazardous, as well as the clean up of land to be returned to the USFS. Alternative 1 would require the removal or demolition of UXO in the portion of the Withdrawal Area that would be returned to USFS control. Signs would be put up to warn the public that the portion of the Withdrawal Area east of the fence would not be safe until UXO identification and clean-up activities were completed. As with the Proposed Action, there would be no disproportionate increase in environmental health or safety risks to children.

There would be a beneficial impact to human health and safety because of the increased safety and security and the prevention of unauthorized entry to the base from the east side.

#### 4.1.2.3 Alternative 2

Implementation of Alternative 2 would have the same minor beneficial impacts on human health and safety at Kirtland AFB as those stated for the Proposed Action due to the increase in security on the base. The improved fencing would restrict unauthorized access to active test and training ranges. As with the Proposed Action, there would be no disproportionate increase in environmental health or safety risks to children and there would actually be a benefit because of the increased safety.

#### 4.1.2.4 No-Action Alternative

Selection of the No-Action Alternative would result in no changes to current conditions of safety or risks to children on base.

## 4.2 AIR QUALITY

### 4.2.1 Significance Criteria

The 1990 amendments to the Clean Air Act (CAA) require federal agencies to conform to the affected State Implementation Plan (SIP) with respect to achieving and maintaining attainment of National Ambient Air Quality Standards (NAAQS) and addressing air quality impacts. An air quality impact resulting from a proposed action would be significant if it would: (1) increase concentrations of ambient criteria pollutants or ozone precursors to levels exceeding NAAQS, (2) increase concentrations of pollutants already at nonattainment levels, (3) lead to establishment of a new nonattainment area by the governor of the state or the US Environmental Protection Agency (EPA), or (4) delay achievement of attainment in accordance with the SIP.

The CAA General Conformity Rule states that nonattainment and maintenance areas must conform to the applicable SIP. Kirtland AFB is covered by a carbon monoxide (CO) maintenance plan, and the applicable de minimis level for CO is 100 tons per year (tpy). Furthermore, total CO emissions in the Albuquerque-Bernalillo County air basin



are estimated to be 141,984 tpy. Therefore, CO emissions from mobile, area, and stationary, as well as construction phase emissions associated with a project at Kirtland AFB would not be considered regionally significant unless they were in excess of 14,198 tpy (10 percent of 141,984). The CAA conformity rule states that only net emissions must be considered.

## **4.2.2 Impacts**

### **4.2.2.1 Proposed Action**

The greater Albuquerque area, including Kirtland AFB, is in attainment for all NAAQS, although the area was reclassified from nonattainment to maintenance status for CO in 1996. As a result, CO emissions are still being tracked. As described above, the EPA defines an action as regionally significant only when that action contributes at least 10 percent of a nonattainment area's total emissions for any criteria pollutant.

The Proposed Action would have a minor, short-term impact on air quality from increased air emissions during ground disturbance and site preparation activities, emissions from vehicles and heavy equipment, and fugitive dust emissions from vehicles traveling on unpaved roadways used during construction of new fencing. Mitigation measures may include controlling dust by application of water to unpaved roads used to access the construction site. Table 4-1 lists the potential CO emissions for construction equipment under the Proposed Action. Emissions generated by contractor vehicles and construction equipment would be minor, temporary and short-term.

### **4.2.2.2 Alternative 1**

Implementation of Alternative 1 would have similar minor, short-term impacts on air quality at Kirtland AFB as those described for the Proposed Action.

### **4.2.2.3 Alternative 2**

Implementation of Alternative 2 would have similar minor, short-term impacts on air quality at Kirtland AFB as those stated for the Proposed Action and Alternative 1.

**Table 4-1. CO Emissions Generated by the Proposed Action**

<b>Categories</b>	<b>CO Emission Factors<sup>a</sup></b>	<b>Total CO Emissions</b>
	<b>Lb/hr</b>	<b>Lb/yr</b>
Contractor-Owned Vehicles <sup>b</sup>	2.19	14,300
Off-Highway Trucks	3.68	2,392
Excavator	5.20	3,380
Compressor	1.07	696
Crane	1.63	1,060
Tractor/Loader/Backhoe	2.91	1,892
Dumpers/Tenders	3.68	2,392
Grader	1.12	728
Rubber-tired dozers	1.99	1,294
Chainsaw (gas powered)	11.00	7,150
Shredder (gas powered)	5.37	3,491
Cement/Mortar mixer	0.10	65
Rough terrain forklifts	1.86	1,209
Other Construction Equipment	1.97	1,281
<b>Project Totals<sup>c</sup></b>	<b>43.77</b>	<b>41,330</b>
<b>Albuquerque/Bernalillo County Standard<sup>d</sup></b>		<b>200,000</b>
<b>EPA Standard<sup>e</sup></b>		<b>200,000</b>

**Notes:**

<sup>a</sup> Emission Factors for heavy-duty, diesel-powered construction equipment were obtained from the Nonroad Engine and Vehicle Emission Study-Report, Office of Air And Radiation, US Environmental Protection Agency, November 1991.

<sup>b</sup> Calculation of the Contractor Owned Vehicles Category was calculated using the US Air Force Air conformity Applicability Model for 22 contractor-owned vehicles commuting to the base using a 30-mile round trip.

<sup>c</sup> The total emissions were calculated by multiplying the emissions per hour for each type of equipment by 10 hours per day, 5 days per week, and 13 weeks per year. The entire project would last one year and each piece of equipment would be used for only a portion of that time.

<sup>d</sup> New Mexico Air Quality Bureau Ambient Air Quality Standards, October 2002

<sup>e</sup> 40 CFR 93.153(B)(1) - Carbon Monoxide Standard for Non-Attainment Areas.

CO = carbon monoxide

EPA = Environmental Protection Agency

**4.2.2.4 No-Action Alternative**

No changes to air quality would result from selection of the No-Action Alternative because no construction activities would occur.

## **4.3 NOISE**

### **4.3.1 Significance Criteria**

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e. if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e. if the number of sensitive receptors exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e. if they result in increased exposure of sensitive receptors to unacceptable noise levels). Noise impacts would be considered significant if health and safety standards for noise are violated, if sensitive receptors are disproportionately affected, or if damage results to personal property from noise or associated vibration.

### **4.3.2 Impacts**

Land use guidelines established by the US Department of Housing and Urban Development and based on findings of the Federal Interagency Committee on Noise recommend acceptable levels of noise exposure for various types of land uses. Projected noise impacts from the Proposed Action and Alternatives were evaluated quantitatively against these acceptable noise levels.

#### **4.3.2.1 Proposed Action**

The Proposed Action would generate noise from construction equipment and construction vehicles, but the construction would occur in relatively remote areas and would be of short duration. Construction activities would cause minor, temporary increases in noise near the perimeter fencing sites. Noise generation would last only for the duration of construction activities, and would be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (i.e. between 7 a.m. and 6 p.m.). Because of the remote location of the east fence and the minimal amount of noise produced by construction of the northern fence, sensitive receptors would not be affected on or off base. Construction of the northern portion of the fence would be near a residential area, but would not require any chain saws or heavy equipment. In addition, the noise environment on base is dominated by commercial and military aircraft overflight. A vehicle mounted auger and one or two support vehicles

would be used to construct the eastern perimeter fence. Other vehicles and equipment (See Table 4-1) would be used in construction of the east fence including those used for road clearing and construction material delivery. Chain saws would be used in construction of the firebreak. Noise associated with construction activities would be minor and short-term in duration compared to aircraft activity in the area.

#### 4.3.2.2 Alternative 1

Alternative 1 would have similar minor, short-term impacts as those described for the Proposed Action. As stated in the Proposed Action, noise associated with construction activities would be minor and short-term, especially when compared to aircraft activity in the area.

#### 4.3.2.3 Alternative 2

Implementation of Alternative 2 would have similar minor, short-term impacts on the noise environment at Kirtland AFB as those stated for the Proposed Action and Alternative 1. As in the Proposed Action and Alternative 1, noise associated with construction activities would be minor and short-term, especially when compared to aircraft activity in the area.

#### 4.3.2.4 No-Action Alternative

No changes to the noise environment would result from selection of the No-Action Alternative because replacement of the perimeter fencing would not occur.

### 4.4 LAND USE

#### 4.4.1 Significance Criteria

Potential impacts to land use are evaluated by determining if an action is compatible with existing land use and in compliance with adopted land use plans and policies. In general, land use impacts would be considered significant if they would: (1) be inconsistent or noncompliant with applicable land use plans and policies, (2) prevent continued use or occupation of an area, or (3) be incompatible with adjacent or nearby land use to the extent that public health or safety is threatened.

#### **4.4.2 Impacts**

Potential land use impacts were analyzed by: (1) identifying and describing land uses that could affect or be affected by the project, (2) examining the effect the action may have on the resource, (3) assessing the significance of potential impacts, and (4) providing measures to mitigate potentially significant impacts.

##### **4.4.2.1 Proposed Action**

Under the Proposed Action, approximately 1,500 acres of Department of Defense withdrawn lands would eventually be returned to the USFS. Implementation of the Proposed Action would result in beneficial changes to designated land use due to the land being returned to the USFS. The Proposed Action is consistent with the Cibola National Forest Land and Resource Management Plan of 1985 (Management Area 2 amended November 1996). Changes in land use resulting from the Proposed Action are also consistent with the US Department of Agriculture Forest Service Environmental Analysis of 1996. UXO must be removed prior to the land's return to the USFS. UXO removal is presently unfunded and may take many years to complete.

Land use would change once the land is turned back over to the USFS. Once funding is available, UXO from past land use of military training would be surveyed and removed before this land would be turned back over to the USFS. Minor land disturbance would occur from replacing the existing eastern perimeter fence, as well as any clearing done to provide an access path where gravel and dirt roads or two-track jeep trails do not exist. The Proposed Action would require approximately 5 miles of new perimeter fencing on the eastern perimeter of the base and 1,000 feet along the northern perimeter. A 10-foot firebreak would be cleared on each side of the eastern fence. While construction is occurring, land use in the area would be impacted in the short-term. In addition, clearing for a firebreak would cause minor changes to land use along the eastern perimeter fence. The new fence would be compatible with the surrounding area, as well as existing and projected land use. Land use within the project area would conform to the Albuquerque/Bernalillo County Comprehensive Plan. Prior to full remediation of the UXO, Kirtland would work to develop a program to possibly allow permitted public access to the established trails outside the fence once it is determined they are safe for recreational purposes.

**Recreation.** There would be long-term benefits to land use for recreational purposes under the Proposed Action if the approximately 1,500 acres of land were transferred back to the USFS and public access were allowed in the Otero and Bonito Canyon areas.

#### 4.4.2.2 Alternative 1

Under Alternative 1, approximately 500 acres would be transferred back to the USFS and the impacts to current land use would be similar to those stated for the Proposed Action. Alternative 1 would allow access to the Otero Canyon area that is currently closed to public access.

**Recreation.** There would be long-term benefits to land use for recreational purposes under Alternative 1 if the approximately 500 acres of land were transferred back to the USFS and public access were allowed in the Otero Canyon area.

#### 4.4.2.3 Alternative 2

Implementation of Alternative 2 would not change land use as it is currently designated. The fence would be constructed along the existing installation boundary of the Withdrawal Area.

**Recreation.** Recreational activities of current unauthorized users of the trails within the Withdrawal Area would be impacted because the fence would prohibit them from entering the Withdrawal Area.

#### 4.4.2.4 No-Action Alternative

The No-Action Alternative would result in no changes to land use at Kirtland AFB.

### 4.5 GEOLOGICAL RESOURCES

#### 4.5.1 Significance Criteria

An impact to geological resources would be considered significant if implementation of the proposed action would violate a federal, state, or local law or regulation protecting geological resources (e.g., impacted unique landforms or rock formations), or result in

uncontrolled erosion over a larger area than that allowed by regulations protecting soil resources.

#### **4.5.2 Impacts**

Protection of unique geologic features and minimization of soil erosion are considered when evaluating impacts of a proposed action on geological resources. Generally, such impacts are not considered significant if proper construction techniques and erosion control measures can be implemented to minimize short- and long-term disturbance to soils and overcome limitations imposed by earth resources.

##### **4.5.2.1 Proposed Action**

Under the Proposed Action, no significant impacts to regional geological resources would occur nor would the region's infrequent seismic activity create a significant threat to construction workers given the use of standard construction procedures.

The Proposed Action would occur in several of the soil associations present in the Withdrawal Area and Kirtland AFB. These soils are prone to slight to severe erosion. The small surface area to be disturbed from the installation of the fencing, wildlife passes, gate poles, and bollards makes the risk of erosion from these activities minimal and easy to control with standard construction practices.

Construction of the firebreak and the security road would remove all vegetation within 10 feet of both sides of the fence leaving only exposed soil. Maintaining the firebreak and the dirt security road would result in soil erosion. The degree to which erosion would occur is largely dependent on the slope of the local terrain. Most of the terrain that would be traversed by the eastern fence has slopes on average of 8 percent or less. Soil erosion in these areas is not expected to be significant. Some isolated regions of steep terrain (i.e. greater than 10 percent) would be fenced. In order to prevent significant soil erosion in areas of steep terrain, Kirtland AFB would implement USFS approved soil erosion control measures. Kirtland AFB is currently developing a road closure plan in consultation with the USFS, which would close and revegetate roads located in the Withdrawal Area no longer needed for military activities. Closure and revegetation of these roads would offset some of the soil erosion expected to result from the firebreak and new security road.

Existing gravel, dirt and two-track jeep trails would be utilized during the construction of the perimeter fence whenever possible. Short-term use of existing roads during the construction of the fence is not expected to significantly increase the road erosion potential. In areas where no roads exist, an access path would be cleared. The size of the path would be determined by the means of transportation (i.e. four wheeled vehicle, all-terrain vehicles, two wheeled vehicles or foot). Since access paths would be limited to areas of relatively flat to moderately sloping terrain, effects on the soil from construction of the perimeter fence and access paths are expected to be localized and insignificant. Best management practices would adequately address any potential erosion issues.

Once the perimeter fence is installed, localized flooding may occur on the upstream side of any small arroyos that the fence crosses. This erosion would occur due to the accumulation of debris (e.g., dead plant matter and trash) up against the bollards, thus impeding water flow. Minor erosion could result around the blockage, but it would be localized and not significant.

#### 4.5.2.2 Alternative 1

Impacts to geological resources from Alternative 1 would be similar to those discussed for the Proposed Action since similar terrain and soils would be affected. No significant impacts are expected to occur.

#### 4.5.2.3 Alternative 2

Impacts to soil erosion under this alternative would be greater than under the Proposed Action since the steep terrain associated with Otero Canyon would be fenced. Otero Canyon is relatively steep compared to the other terrain proposed for fencing. Risk of serious erosion becomes greater as the steepness of the terrain increases. Impacts to other geological resources are expected to be similar to those outlined for the Proposed Action.

#### 4.5.2.3 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current conditions of geological resources at Kirtland AFB.



## **4.6 WATER RESOURCES**

### **4.6.1 Significance Criteria**

Criteria for determining the significance of impacts to water resources are based on water availability, quality, and use; existence of floodplains and wetlands; and applicable regulations. An impact to water resources would be considered significant if it would: (1) reduce or interfere with water availability to existing users, (2) create or contribute to overdraft of groundwater basins, (3) exceed safe annual yields of water supply sources, (4) adversely affect water quality or otherwise endanger public health, (5) threaten or damage unique hydrologic characteristics, or (6) violate established laws or regulations that have been adopted to protect or manage water resources. Impacts to floodplains would be considered significant if a proposed action would alter flow within a floodplain.

### **4.6.2 Impacts**

Potential impacts to water resources are typically analyzed by: (1) identifying and describing the effect the action could have on the resource, (2) examining the effect the action could have on the resource, (3) assessing the significance of potential impacts, and (4) providing measures to mitigate potentially significant impacts.

#### **4.6.2.1 Proposed Action**

Under the Proposed Action, the east perimeter security fence would be built primarily along a ridgeline. Therefore, no arroyos or other water features would be affected by the Proposed Action. Since few, if any, watercourses would be crossed by the fence, localized flooding during storm events would not occur.

Water quality is not expected to be significantly impacted by the Proposed Action. Erosion caused by the construction of the firebreak and security road would be reduced by following the erosion control measures outlined in the Geological Resources section. This would reduce the amount of sediment resulting from the Proposed Action from entering the various drainages. Sediment laden flows from these drainages rarely reach the Rio Grande River, as approximately 95 percent is either absorbed into the ground or evaporated. Therefore, water quality in the Rio Grande River would not be significantly impacted by the Proposed Action.

Impacts to groundwater are not expected, as intrusive construction would be shallow (less than 5 meters) and changes to water consumption from the construction of the perimeter fences would not occur.

#### 4.6.2.2 Alternative 1

Under Alternative 1, the east perimeter fence would transect the upper portion of Otero Canyon as well as other small arroyos. However, impacts from the construction of the east perimeter fence, security road and firebreak are not expected to be significant since erosion control measures would be implemented as discussed in Section 4.5.2.1. A Section 404 permit would need to be obtained from the US Army Corps of Engineers, Albuquerque District office as required under the 1977 Clean Water Act. Activities requiring a Section 404 permit include the auguring of post holes, fill of wet concrete into the post holes, the installation of arroyo bollards, and other possible dredge and fill construction practices that would take place in an arroyo.

Localized flooding may occur, whenever the fence crosses an arroyo (e.g. Otero Canyon). This is due to debris (e.g. dead plant matter and trash) accumulating along the upstream side of the fence, and impeding water flow. Since no buildings occur in these areas, impacts to man-made structures would not occur. Isolated flooding events may cause localized erosion, thus contributing to the total soil load during runoff events. However, impacts from erosion are expected to be localized and not significant.

Implementation of Alternative 1 would have similar impacts on groundwater and water quality at Kirtland AFB to those stated for the Proposed Action.

#### 4.6.2.3 Alternative 2

Implementation of Alternative 2 would have similar impacts on water resources as those discussed for Alternative 1. However, localized flooding in Otero Canyon may be slightly greater under Alternative 2. The placement of the fence under Alternative 2 is located further downstream, thus involving larger volumes of water during runoff events.

#### 4.6.2.4 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current conditions of water resources at Kirtland AFB because no construction or other disturbances would occur.

### 4.7 BIOLOGICAL RESOURCES

#### 4.7.1 Significance Criteria

Determination of the significance of impacts to biological resources is based on: (1) the importance (legal, commercial, recreational, ecological, or scientific) of the resource; (2) the proportion of the resource that would be affected relative to its occurrence in the region; (3) the sensitivity of the resource to proposed activities; and (4) the duration of ecological ramifications. Impacts to biological resources are considered significant if species or habitats of high concern are adversely affected over relatively large areas, or disturbances cause reductions in population size or distribution of a species of special concern.

Determination of the significance of wetland impacts is based on: (1) the function and value of the wetland, (2) the proportion of the wetland that would be affected relative to the occurrence of similar wetlands in the region, (3) the sensitivity of the wetland to proposed activities, and (4) the duration of ecological ramifications. Impacts to wetlands resources are considered significant if high value wetlands would be adversely affected.

#### 4.7.2 Impacts

Biologists familiar with the resources on the base were contacted to identify those species or habitats in the vicinity of the project site. Potential impacts to biological resources, such as habitat loss and noise, resulting from implementation of the Proposed Action were evaluated.

##### 4.7.2.1 Proposed Action

The majority of the proposed perimeter fence would be constructed within the piñon-juniper woodland and the ponderosa pine communities. Vehicles used for the

construction of the fence would use existing roads to access the area. Vegetation located within 10 feet of either side of the proposed fence line would be removed so that an access road and a firebreak can be constructed. Approximately 2.2 acres of vegetation would be removed per mile of fencing. Merchantable wood cleared for the proposed fence would be made available to the public at a location identified by the USFS. To prevent forest fires, remaining slash would be chipped and broadcast as required by USFS guidelines. Although 12-15 acres of vegetation would be removed during the implementation of the Proposed Action, it would not result in a significant impact, since the type of vegetation being cleared is common to the area and not unique. Additionally, the amount being removed is minor when compared to the thousands of acres of similar habitat surrounding the Proposed Action. USFS personnel would continue to have access to the Withdrawal Area to manage trees affected by insects and disease. Therefore, management of the forest health is not expected to change.

Significant impacts to wildlife from the construction of the east perimeter fence are not expected to occur. Once the perimeter fence is completed, short-term impacts to transient mammals may occur. Many medium to large mammals, such as foxes, coyotes, and mule deer, may find the east perimeter fence an initial barrier that prevents them from foraging or moving through an area. Medium sized mammals, such as coyotes are likely to burrow under the new east perimeter fence to negotiate the barrier. This behavior has been observed at Kirtland AFB along the northern perimeter fence. Larger mammals such as mule deer would be prevented from crossing the fence, since they do not burrow and the height of the fence (8 feet) would discourage them from jumping over. Most of the mule deer present at Kirtland AFB occur along the eastern portion of the base and along the western portion of the Withdrawal Area, occupying both juniper and piñon-juniper woodland habitats. To assist in large mammal movements, wildlife passes would be installed at a frequency determined by consultation with the New Mexico Department of Game and Fish and the USFS in order to avoid significant impacts to wildlife movement. These passes are designed to allow large mammals such as mule deer to easily jump over the fence while allowing bears, coyotes and mountain lions to move under them. Small mammals (i.e. mice and voles) may avoid crossing the 20-foot wide firebreak but since they tend to have smaller home ranges and large tracts of suitable habitat are available on each side of the fence, no significant impacts are expected. To avoid harassment of wildlife from unauthorized use of the firebreaks by off-road vehicles, barricades would be constructed along the firebreak where public roads cross it. Barricades would be constructed following USFS guidelines. Several small mountain

meadows are found in the area of the proposed fence line. None of these meadows would be transected by the Proposed Action. As a result, impacts to wildlife from the installation of the fence are not expected to be significant.

No wetland habitats exist near the Proposed Action; the closest wetlands are located approximately 1 mile west from the proposed fence at the northern boundary just west of the Withdrawal Area. Therefore, impacts to wetlands are not expected to occur.

One federally listed threatened bird species, the bald eagle, could fly over the project site, as could the state threatened American peregrine falcon. Impacts to these species are unlikely since very little change to the local environment would occur. Mexican spotted owls, a federally threatened species, has the potential to occur in the area. Impacts to this species are unlikely, as habitat in the Withdrawal Area is marginal and previous surveys have not revealed their presence. However, to insure that the Mexican spotted owl does not inhabit the area, all habitat located within a half mile of the Proposed Action would be surveyed in accordance with US Fish and Wildlife Service (USFWS) procedures. In the unlikely event that a Mexican spotted owl is present, the USFWS would be contacted for further instruction. Neither the state threatened white-eared hummingbird nor the spotted bat are expected to be affected since both species are considered rare transients in New Mexico.

The state threatened gray vireo has been observed in the juniper woodland community in the Withdrawal Area, which the majority of the Proposed Action does not transect. The small isolated segment of fence line that transects the northeast corner of Kirtland AFB is however, located in gray vireo habitat. Although no gray vireos were found in the immediate area, a gray vireo was observed approximately 400 meters south of this proposed fence line segment during a 2003 gray vireo survey. Construction of this segment of the fence is not expected to impact the gray vireo as several gray vireos were observed along other existing fence lines throughout the study area. Additionally gray vireos occupy relatively open habitat and very few juniper trees would need to be cut to erect the fence. However, to avoid direct impacts to potential gray vireo nests in the area, construction of this segment of fence line would be performed outside of the gray vireos nesting period (i.e. construction would occur from September to mid-March).

Only five federal species of concern potentially occur in the vicinity of the Proposed Action. The ferruginous hawk and the northern goshawk may forage over the site but,

like the American peregrine falcon and the bald eagle, the actions involved with the construction of the proposed eastern perimeter fence are not expected to negatively affect these species. The long-legged myotis bat is unlikely to be affected since no potential roosting sites are known to occur in the area. The western burrowing owl, while present on base, is mainly found in disturbed areas in the cantonment area. The rocky terrain associated with the northeast corner of Kirtland AFB does not provide adequate habitat for this species. The loggerhead shrike can occasionally be found in the northeast corner of Kirtland AFB. However, the construction of this small portion of the fence line is not expected to impact the species, as other quality habitat is located nearby and shrikes often use barbed wire fences for impaling their prey while feeding.

#### 4.7.2.2 Alternative 1

Implementation of Alternative 1 would have similar impacts on biological resources at Kirtland AFB as those described for the Proposed Action since similar terrain and species occur in the area. Mitigation measures addressed under the Proposed Action would also be implemented under Alternative 1.

#### 4.7.2.3 Alternative 2

Implementation of Alternative 2 would have similar impacts on biological resources at Kirtland AFB as those described for the Proposed Action since similar terrain and species occur in the area. Mitigation measures addressed under the Proposed Action would also be implemented under Alternative 2.

#### 4.7.2.4 No-Action Alternative

Under the No-Action Alternative, existing conditions, as described in Section 3, would remain unchanged. Therefore, implementation of the No-Action Alternative would not affect biological resources.

## **4.8 TRANSPORTATION AND CIRCULATION**

### **4.8.1 Significance Criteria**

Impacts to transportation and circulation are assessed by determining an action's potential to change current transportation patterns, systems, service, and safety. Impacts may arise from physical changes to circulation (e.g., closing, rerouting, or creating roads), construction activity (e.g., introduction of construction-related traffic on local roads), or changes in daily or peak-hour traffic volumes created by workforce and population changes related to installation activities. An impact on roadway capacities would be considered significant if a road with no history of capacity exceedances were forced to operate at or beyond its design capacity. An impact would also be considered significant if the action would increase traffic on roads already experiencing traffic problems.

### **4.8.2 Impacts**

Potential impacts to transportation and circulation are typically analyzed by: (1) identifying and describing transportation and circulation that could affect or be affected by the project, (2) examining the effect this action may have on the resource, (3) assessing the significance of potential impacts, and (4) providing measures to mitigate potentially significant impacts.

#### **4.8.2.1 Proposed Action**

Replacing the existing perimeter fence would increase transportation to and from the fence line area for the duration of construction. The construction traffic that would occur on the roadways along the northern and eastern boundary of the Withdrawal Area would not have a significant impact on transportation on or off base.

The 1,000 feet of new fence along the northern boundary would be near a one-lane dirt road that parallels the northern boundary of the base. Construction of the fence would not impact transportation in the area because the road is seldom used. Any traffic along the road could drive around the construction site if necessary. The road is very low speed and no change in level of service would occur from bypassing the construction site.

An access road would need to be cleared to provide construction access to the east fence line. Construction staging areas would be located in areas to be designated by Kirtland AFB personnel. Transportation of heavy machinery and construction materials to the fence line site would produce a minor increase in traffic. This is not anticipated to create a significant impact to transportation in the project area.

Perimeter fence construction would result in increased construction worker and material-hauling vehicle trips to and from the project sites, but the sites would be in remote areas of the base. Vehicle traffic from construction worker trips and construction deliveries would be on Interstate 40 and Highway 337, Raven Road and Mars Court within the Eastern Mountain residential areas to access USFS Road 530 to get onto Kirtland AFB through the East Gate. This increase in traffic would be short-term and would not have a significant impact on transportation in the vicinity of the project area. Consultation with the USFS would take place to discuss possible road closures and moving the East Gate once the land is remediated and returned to the USFS.

#### 4.8.2.2 Alternative 1

Implementation of Alternative 1 would have similar minor, short-term impacts on transportation and circulation in the vicinity of the project area as those stated for the Proposed Action.

#### 4.8.2.3 Alternative 2

Implementation of Alternative 2 would have similar minor, short-term impacts on transportation and circulation in the vicinity of the project area as those stated for the Proposed Action and Alternative 1. However, the east gate would not be moved and potential road closures would not take place since, under this alternative, the installation boundary would remain the same.

#### 4.8.2.4 No-Action Alternative

The No-Action Alternative would result in no change to current conditions of transportation and circulation at Kirtland AFB because no construction activities would occur.



## **4.9 VISUAL RESOURCES**

### **4.9.1 Significance Criteria**

Criteria for determining the significance of impacts to visual resources are based on the level of visual sensitivity in an area. Visual sensitivity is defined as the degree of public interest in visual resources and concern over adverse changes in the quality of that resource. In general, an impact on a visual resource would be considered significant if implementation of an action would substantially alter a sensitive visual setting.

### **4.9.2 Impacts**

After assessing the visual character and relative sensitivity of the affected setting, changes to the landscape associated with the Proposed Action and Alternatives were analyzed in terms of their potential to noticeably alter existing viewsheds.

#### **4.9.2.1 Proposed Action**

New fence construction would impact portions of the eastern border of the Withdrawal Area. Where there is existing fence in the area, it is three-strand barbed wire. Although chain link fencing is visually different from the existing barbed wire fence, the remote location of the proposed chain link fence would not significantly impact visual resources. Once the UXO is cleaned up and the 1,500 acres of land is returned to the USFS, the new fence would be noticeable to the public accessing the land adjacent to the new Withdrawal Area boundary and fence. However, the new boundary would create more distance between the base boundary and residential areas to the east, so the fence would not be easily viewed by residents of this area unless they hiked or biked to the new fence line. The construction of the firebreaks and access roads would impact visual resources, but would be similar to forest roads and firebreaks common throughout the area.

The existing fence along the northern boundary just west of the Withdrawal Area would be replaced. An access path would be cleared to allow construction of the fence, but the visual surroundings would remain virtually the same. No firebreak would be cleared because there are few trees in that part of the base and a patrol road would not be built because the section of fence to be replaced is clearly visible from nearby existing roads.

The new fences would not have a significant impact on visual resources in the northern or eastern boundary areas.

#### 4.9.2.2 Alternative 1

Implementation of Alternative 1 would have a similar impact on visual resources at Kirtland AFB as those stated for the Proposed Action. Portions of the fence may be visible to residents and residential areas adjacent to the Withdrawal Area, but due to the mountainous terrain and varying elevations, the fence would not be visible from most residential view sheds.

#### 4.9.2.3 Alternative 2

Implementation of Alternative 2 would have similar impacts on visual resources at Kirtland AFB as those described for the Proposed Action and Alternative 1. Since the fence would be built on the existing eastern boundary, portions of the fence would be visible from residential areas adjacent to the Withdrawal Area. However, many portions of the fence may be blocked from view due to terrain features.

#### 4.9.2.4 No-Action Alternative

The No-Action Alternative would result in no change to current visual conditions at Kirtland AFB or the region.

### 4.10 CULTURAL RESOURCES

#### 4.10.1 Significance Criteria

The National Historic Preservation Act of 1966, as amended, establishes the National Register of Historic Places (NRHP). Title 36 CFR Section 60.4 defines the criteria used to establish significance and eligibility to the National Register.

#### 4.10.2 Impacts

Analysis of potential impacts to significant cultural resources considers both direct and indirect impacts. Impacts may occur by:

1. Physically altering, damaging, or destroying all or part of a resource;
2. Altering the characteristics of the surrounding environment that contribute to resource significance;
3. Introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or
4. Neglecting the resource to the extent that it is deteriorating or destroyed.

#### 4.10.2.1 Proposed Action

The Proposed Action includes construction of approximately five miles of fencing near the existing eastern boundary of the Withdrawal Area boundary. According to the current archaeological survey seven archaeological sites are known to exist along or near the proposed fence line corridor. These sites have been recommended to the NRHP for inclusion on the National Register. The fence would go around these sites to avoid the cultural resources. Therefore, no cultural resources would be affected by this action.

#### 4.10.2.2 Alternative 1

Alternative 1 includes the construction of approximately 5 miles of fencing along or near the existing eastern boundary of the Withdrawal Area, with the exception of fencing out 1.5 miles of Otero Canyon. According to the current archaeological survey nine archaeological sites are known to exist along or near the proposed fence line corridor. These sites have been recommended to the NRHP for inclusion on the National Register. The fence would go around these sites to avoid the cultural resources. Therefore, no cultural resources would be affected by this action.

#### 4.10.2.3 Alternative 2

Alternative 2 includes the construction of approximately 5 miles of fencing along or near the existing eastern boundary of the Withdrawal Area. According to the current archaeological survey five archaeology sites are known to exist near the proposed fence line corridor along the eastern boundary of the Withdrawal Area. These sites have been recommended to the NRHP for inclusion on the National Register. The fence would go around these sites to avoid the cultural resources. Therefore, no cultural resources would be affected by this action.

#### 4.10.2.4 No-Action Alternative

Implementation of the No-Action Alternative would result in no change to existing conditions of cultural resources and therefore would have no impact to those resources.

#### 4.10.2.5 State Historic Preservation Office and Native American Consultation

The Draft EA has been reviewed by the State Historic Preservation Office (SHPO) and they have determined no adverse effects as long as the “proposed undertaking would ‘avoid’ these sites” (see SHPO letter, Appendix A). All of the actions proposed would avoid all cultural resources. Therefore, no cultural resources would be affected by this action.

The USFS included the installation of a fence in the Withdrawal Area in their consultation with Native American Tribes. No Tribes have pursued consultation regarding this action.

### 4.11 SOCIOECONOMICS

#### 4.11.1 Significance Criteria

Impacts to populations and economics are assessed by determining an action’s direct effect on the local economy and related effects on other socioeconomic resources (e.g., housing). A socioeconomic impact would be considered significant if implementation of an action would substantially shift population trends, or adversely affect regional spending patterns.

An impact to environmental justice would be considered significant if an action would result in a disproportionate adverse impact to minority or low-income populations in the project vicinity.

#### 4.11.2 Impacts

Potential impacts to socioeconomic resources were analyzed by: (1) identifying and describing socioeconomic resources that could affect or be affected by the project, (2) examining the effects this action may have on the resource, (3) assessing the significance

of potential impacts, and (4) providing measures to mitigate potentially significant impacts.

#### 4.11.2.1 Proposed Action

Socioeconomic impacts within the region of influence (ROI) that were addressed and analyzed include land values, recreation, tourism, job creation, and environmental justice within the project area. Other socioeconomic factors including land use, transportation and circulation, and visual resources were addressed as separate resource sections.

**Land Values:** Studies have shown that property within or adjacent to wilderness areas or parks and other recreational areas will increase in value. According to the New Mexico Wilderness Alliance, studies have shown that “a wilderness near rural communities increased property values and also increased county revenues.” Because land within the ROI and Proposed Action is within Cibola National Forest and is surrounded by scenic areas and recreation areas, it is possible the Proposed Action may have a beneficial impact on current land or property values due to possible access to recreational areas once the land is cleared of UXO and the long-term plan to return the land to the USFS.

**Recreation/Tourism:** Recreation and tourism is going to continue in the project area because it is a national forest. There are numerous recreational facilities surrounding the project area (see Section 3.11). Visitors would continue to contribute to the economy of the area. The Proposed Action is expected to have a beneficial impact on recreation and tourism in the area and therefore have a positive impact to the economy in the area.

**Employment:** Purchase of construction materials to install new fencing, and salaries paid to construction workers would constitute a minor, temporary, beneficial impact on the local economy. Contracts for construction equipment would also have a temporary, beneficial impact. In an area the size of the ROI, these impacts would be negligible.

**Environmental Justice:** Although the ROI has relatively high percentages of minority and low-income populations, these communities would not be disproportionately affected. Therefore, possible disproportionate impacts to populations identified in EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, would not occur.

Overall, the Proposed Action would have a beneficial impact on socioeconomics due to the return of withdrawn land to the USFS. It would allow recreationists to access areas in Otero Canyon and Bonito Canyon to use trails for hiking, biking, horseback riding, and other recreational activities.

#### 4.11.2.2 Alternative 1

There would also be similar minor, short-term and long-term beneficial impacts on socioeconomics at Kirtland AFB and the surrounding areas as those stated for the Proposed Action. However, Bonito Canyon and other parts of the Withdrawal Area would remain closed to public access. It is not expected to have a long-term negative impact due to the socioeconomic factors described for the Proposed Action.

#### 4.11.2.3 Alternative 2

If Alternative 2 is implemented, there would be similar minor, short-term beneficial impacts on socioeconomics at Kirtland AFB and the surrounding areas as those described for the Proposed Action and Alternative 1. However, Otero and Bonito Canyons would remain closed to public access. This alternative is not expected to have a long-term negative impact on socioeconomics due to the socioeconomic factors described for the Proposed Action.

#### 4.11.2.4 No-Action Alternative

Selection of the No-Action Alternative would not result in any changes to socioeconomics or to the minority or low-income populations in the Albuquerque area.

### **4.12 ENVIRONMENTAL MANAGEMENT**

#### **4.12.1 Significance Criteria**

Numerous local, state, and federal laws regulate the storage, handling, disposal, and transportation of hazardous materials and wastes. The primary purpose of these laws is to protect public health and the environment. The significance of potential impacts associated with hazardous wastes is based on toxicity, ignitability, reactivity, and corrosivity. Generally, impacts associated with hazardous materials and wastes would be

considered significant if implementation of a proposed action would involve the storage, use, transportation, or disposal of hazardous substances that would substantially increase human health risks or environmental exposure. For example, if implementation of a proposed action would exacerbate conditions at an existing area of contamination associated with the Installation Restoration Program (IRP), impacts would be considered significant.

A reduction in the quantity of hazardous substances used and/or generated would be a beneficial impact; a substantial increase in the quantity and/or toxicity of hazardous substances used or generated could be potentially significant. Significant impacts would result if a substantial increase in human health risks and/or environmental exposure were generated and such impacts could not be mitigated to acceptable local, state, and federal levels.

#### **4.12.2 Impacts**

Analysis of potential impacts to hazardous materials and wastes typically includes: (1) a comparative analysis of existing and proposed hazardous materials and waste management practices to evaluate potential changes resulting from implementation of a proposed action or alternatives, (2) assessment of the significance of potential impacts, and (3) provision of mitigation measures in the event that potentially significant impacts are identified.

Prior to commencement of the Proposed Action, the proposed fence line would be surveyed for UXO and any ordnance found would be removed or detonated in place. In addition, the construction contractor would meet with Kirtland AFB EOD personnel for training in the identification of UXO and the procedure for notifying EOD personnel for its proper disposal.

##### **4.12.2.1 Proposed Action**

As part of the construction process, a short-term increase in non-hazardous waste generation would occur. Non-hazardous construction and demolition wastes (e.g., concrete and metal fencing) would be disposed of at the Kirtland AFB landfill, which has adequate excess capacity to accommodate construction-related waste. Additional non-hazardous waste (e.g., plastics and paper) generated by increased worker activity under

the proposed project would be collected on site and transported to the City of Albuquerque's Cerro Colorado Landfill. Recyclable wastes would be separated for pickup in accordance with the Kirtland AFB Qualified Recycling Program. No additional hazardous wastes would be generated by the construction of the proposed fencing.

The only IRP sites in the vicinity of the proposed fence line are potential occurrences of UXO from the Proximity Fuse Range. This range was used during World War II to test proximity fuses on 5 inch Navy guns. It extends from the gun site, which was located near the intersection of Lovelace and Target Roads to the eastern boundary of the Withdrawal Area. Ordnance found on the range includes five inch shells, 75 mm ballistic shells, 105 and 155 mm dummy and high explosive rounds, 5 inch rocket assisted projectiles and fuses, many of which may still be live.

Under the proposed action, approximately 1,500 acres of the Withdrawal Area would not be fenced and therefore, would remain accessible to unauthorized personnel who could encounter UXO. To avoid UXO encounters by the public, Kirtland AFB would install signs stating the danger of unlawfully entering this portion of the base until UXO clean up could take place. Since this area is currently visited by unauthorized personnel, construction of the fence would not change the risk to the public from UXO in the area that would be outside the fence. The risk to the public from testing and training activities, as well as other portions of the base that are thought to be highly contaminated with UXO would be reduced by construction of the fence.

#### 4.12.2.2 Alternative 1

The impacts of this alternative would be similar to those described for the Proposed Action, although the fence line would change as described in Section 2.2.1 and only 500 acres would be returned to USFS control once UXO clean up was completed. Impacts would be similar to those described for the Proposed Action, although reduction of risk to the public would be greater with this alternative because more of the base would be fenced off.



#### 4.12.2.3 Alternative 2

Under Alternative 2, the east fence would be built along the Withdrawal Area boundary, keeping the public from entering all areas of the base. The risk to the public of encountering UXO would be reduced by excluding unauthorized users from all areas of the base that could contain UXO. All other impacts of this alternative would be similar to those described for the Proposed Action

#### 4.12.2.4 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current conditions of environmental management at Kirtland AFB. Unauthorized civilians would still be able to enter the base and recreate in the entire area containing UXO.

**SECTION 5**  
**PERSONS AND AGENCIES CONTACTED**

Cynthia L. Gooch  
Chief, Environmental Quality  
377 MSG/CEVQ  
Kirtland AFB

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Restoration Branch Chief  
Restoration Program Branch  
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Joan E. Lotosky  
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CESPA-EC-EH  
Albuquerque, NM

Valerie Butler  
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Kirtland AFB

Michael D. Smith  
Albuquerque Environmental Health  
Dept./Air Quality Division  
City of Albuquerque  
Albuquerque, NM

Mike Gustin  
Habitat Specialist  
State of New Mexico Department of  
Game and Fish

Jim Shively  
New Mexico Environment Department  
Air Quality Bureau  
Santa Fe, NM

Clifford J. Dils  
District Ranger  
United States Forest Service  
Cibola National Forest

Joe Price  
USFS Military Withdrawal Coordinator  
United States Forest Service  
Cibola National Forest

## SECTION 6

### LIST OF PREPARERS

This report was prepared for and under the direction of the 377th Air Base Wing Command of Kirtland Air Force Base by the LOPEZGARCIA GROUP. The members of the professional staff of the LOPEZGARCIA GROUP who participated in the development and technical review of this document are listed below.

<u>Preparers</u>	<u>Education</u>	<u>Environmental Experience</u>
Walter L. Moore Manager Colorado/ New Mexico Operations	<i>B.S., Zoology</i>	<i>22 years</i>
Kristine J. Andrews Environmental Scientist/ Noise Analyst	<i>B.A., Geography/ Environmental Studies and Energy Science</i>	<i>4 years</i>
Robert D. Frei Environmental Scientist/ Biologist	<i>B.S., Biology</i>	<i>4 years</i>
Rebecca L. Klundt Document Editor and Preparer	<i>Document Manager</i>	<i>5 years</i>
Deirdre Stites Technical Illustrator	<i>A.S., Geology</i>	<i>23 years</i>

## SECTION 7

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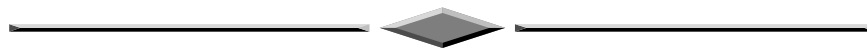
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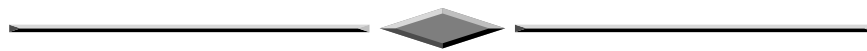
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## **APPENDIX A**

### **INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE**



**APPENDIX A**  
**INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR**  
**ENVIRONMENTAL PLANNING CORRESPONDENCE**

New Mexico Department of Game &  
Fish  
Albuquerque Office

U.S. Forest Service  
Sandia Ranger District  
Cibola National Forest

U.S. Safety Office  
Department of Defense

U.S. Security Forces  
Department of Defense

U.S. Department of Energy

U.S. Directed Energy

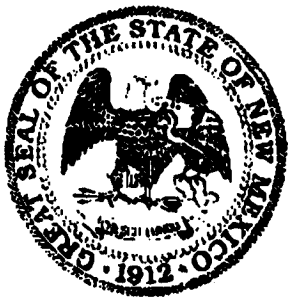
U.S. Fish and Wildlife  
Albuquerque Office

Senator Bingaman

Senator Domenici

Congresswoman Heather Wilson

State Historic Preservation Office



STATE OF NEW MEXICO  
**DEPARTMENT OF CULTURAL AFFAIRS  
HISTORIC PRESERVATION DIVISION**

228 EAST PALACE AVENUE  
SANTA FE, NEW MEXICO 87501  
(505) 827-6320

BILL RICHARDSON  
Governor

July 01, 2003

Ms. Cynthia L. Gooch  
Chief, Environmental Quality  
Environmental Management Division  
Attn: Ms. Valerie Butler  
Dept. of the Air Force  
377 Civil Engineer Squadron (AFMC)  
377 ABW/EMQ  
2050 Wyoming Blvd., S.E.  
Kirtland Air Force Base, NM 87117-5270

Re: *DRAFT Environmental Assessment and FONSI for the proposed Perimeter  
Fencing, Kirtland AFB, New Mexico.*

Dear Ms. Gooch:

We have reviewed the above draft documents received on May 27, 2003.

Per page 4-20 of the Draft EA, the project area has been surveyed for cultural resources, there are known sites in the project vicinity, and the proposed undertaking will "avoid" these sites. Contingent on the sites being avoided, and the use of the enclosed Construction Protocols, we have made a determination of NO EFFECT ON HISTORIC PROPERTIES for the proposed undertaking.

If fence line construction is routed so that it is adjacent to archaeological sites, the site should be completely avoided, or the fence should be constructed by hand to mitigate potential vehicle impacts to the site.

If you have any further questions please contact me at (505) 827-6314.

Sincerely,

*P.A. Young*  
Phillip A. Young  
Staff Archaeologist  
Log # 67625

67925

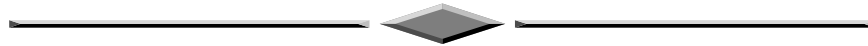


STATE OF NEW MEXICO  
**OFFICE OF CULTURAL AFFAIRS**  
**HISTORIC PRESERVATION DIVISION**

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SANTA FE, NEW MEXICO 87501  
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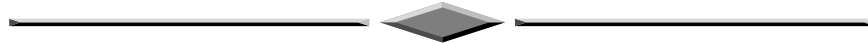
## **CONSTRUCTION PROTOCOLS**

There remains a potential of uncovering cultural remains during the construction phase of this project. For this reason we feel the contractor should be instructed regarding protocols about what-to-do if there are any discoveries of artifacts or other materials (pottery, glass, bone, metal) during construction: 1) work must cease; 2) they should notify this office immediately (505-827-6320); 3) all work in the vicinity of the discovery must stop until an archaeologist can inspect the site; 4) work may continue in other parts of the project.



## **APPENDIX B**

### **DRAFT EA COMMENT LETTERS AND RESPONSE MATRIX**





## **INTRODUCTION**

This volume contains comments received from federal, state, and local agencies, private organizations, and the general public during the public meeting on the Draft Environmental Assessment (EA) and during the entire Draft EA comment period. In accordance with the National Environmental Policy Act, public and agency comments will be reviewed and incorporated into the Final EA. The decision-maker for the project evaluation will consider these public and agency comments in the decision process.

## **COMMENT RESPONSE PROCESS**

Comments on the Draft EA were generated through written correspondence and oral testimony during the Draft EA public comment period and public meeting. The following process was used for reviewing and responding to these comments:

- All comment letters and oral testimony were reviewed carefully and assigned a unique number. This number was also assigned to the commentor.
- Within each comment letter or testimony, substantive comments were identified and bracketed. These bracketed comments were then reviewed by a resource specialist and provided a response.
- All responses were reviewed by Air Force representatives.

An alphabetical directory of commentor's names, with their associated comment number, was also generated and is provided in this volume.

### **Locating Your Comment Letter or Public Testimony**

The directory provides an alphabetical listing of commentors by last name. After locating your name, note the letter number.

The comment letters are printed in numerical order and are organized into three sections: written comments from the public, oral comments made at the public hearing, and government or agency comments. Public comment letters begin with 0001, oral comments begin with 0166, and government or agency comment letters begin with 0200.

## **Locating Responses to Comments**

All comment letters were given a response code. Response codes are printed next to one or more areas in the comment letters. The response categories and codes are listed following the comment directories. Responses are found in the Response section of this volume.

## Public Comments

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments		
0145	Abruzzo	Richard
0165	Abruzzo	Richard
0165	Adams	Janice
0109	Adkins	Ralph
0133	Aguilar	Gabe
0165	Allen	Aaron
0028	Andersen	Shea
0052	Anderson	Steve
0139	Andres	Gladys
0030	Anonymous	
0031	Anonymous	
0032	Anonymous	
0033	Anonymous	
0034	Anonymous	
0165	Appenzeller	Martin
0081	apyles	
0165	Archuletta	Helen Renee
0006	Arellano	Gabriel
0165	Armijo	Luis
0165	Aslaksen	Jeremy
0165	Aslasken	Melissa
0165	Atchison	Jeff
0165	Atencio	Lance
0165	Atzberger	Joseph
0165	Baca	Leigh
0165	Baker	Adam S
0165	Banagay	Robert
0165	Banh	Chuan
0163	Barbatsaly	Peter
0165	Barney	John
0165	Barron	Dennis
0082	Barsun	Hans
0165	Basil	Erik
0165	Battaglia	Timothy J
0165	Bell	William E
0165	Belknap	Christopher
0165	Benak	Mark S
0165	Benson	Ryan M
0064	Benton	W.D.
0160	Blackwell	Lee
0165	Blair	Evan Bartini
0038	Blancher	Jann
0161	Bockes	Jeff
0165	Borden	Christopher
0060	Borden	T.A.
0084	Boros	Jim
0066	Borum	Harry

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0004	Bowen	Leland
0165	Bowles	Nathan A
0165	Boyd	John D J
0021	Boyd	Lara
0165	Boyd	Lara A
0085	Bradley	Jeff
0165	Brainard	Laura
0165	Brasher	Jeanette
0165	Bravo	Anthony D
0165	Bresson	Laura
0165	Brown	Matthew
0165	Brown	Nathaneal
0165	Brown	Renee F
0059	Brown	Timothy
0165	Bruce	Eric G
0148	Bukley	Jerry
0165	Burford	Katie
0165	Burnett	James Paul
0086	Butterfield	Peter
0165	Butterfield	Peter
0165	Calderone	James J
0157	Campbell	Ed
0165	Campbell	Ed
0087	Campbell	J.
0165	Campos	Jose Tepeyollotl
0165	Cardenas	Edna
0165	Carey	Jeremy Miles
0165	Carrico	Michael
0165	Cecil	Christopher
0027	Cherry	Brian
0165	Cherry	Brian R
0165	Chino	Yoshiko
0165	Clum	Tristan F
0002	Colleran	Kathleen
0165	Colombo	Elizabeth Sage
0165	Cook	Casey W
0088	Copass	James
0165	Corban	Susan
0165	Correa	Orlando
0165	Cotter	Scott
0110	Covert	Tim
0165	Cowgill	Race
0036	Crawman	Cindy
0165	Crowson	Bradley Alan
0165	Cruz	Thomas
0165	Dahms	Cathy
0165	Dalen	Kerry
0162	Davis	J.A.
0065	Davis	Paul

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0165	Dean	Don
0165	Denali	David Line
0165	Dettweiler	Josh
0165	Dickinson	Jonathan
0018	Dickson	Rob
0127	Doane	Peter
0165	Dobrick	Christian Evan
0165	Dombrowski	Mark A
0165	Doppke	Mark
0165	Dotson	Patrick W
0165	Doxtater	Bradley
0165	Drumheller, PhD	Douglas S
0165	DtBaker	
0165	Dummer	Martha
0165	Dutcher	Matt
0155	Eatman	Gordon
0165	Eck	Scott
0165	Edaburn	Tracy L
0165	Engelmann	John
0165	Epstein	Barry
0165	Epstein	Robert
0165	Exe	Lynn L
0068	Fachini	Ken and Julie
0165	Fager	Leon
0025	Faich	Ron
0165	Fakhrai	Hamid
0165	Falk	Peter D
0089	Falvey	Brendan
0165	Falvey	Brendan
0108	Farmer	David
0079	Farr	Everett
0063	Fitzpatrick	Tom
0165	Fleming	Jeffrey
0165	Forster	Michael
0164	Fox	Jeff
0112	Fraser	Tom
0165	Freeman	Carrie Tahirih Hitti
0071	Fritts	Joseph
0165	Gabel	David
0105	Gainer	Keith
0165	Galbraith	David
0165	Gale	James
0165	Galloway	Bob
0165	Gant	Kevin
0093	Garrison	Tom
0165	Garvin	Eileen
0165	Geuder	Alan
0091	Giebel	Stephen
0165	Giebel	Stephen J

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0165	Giermakowski	Tom
0016	Gilchrist	Michael
0165	Giuffre	Lawrence
0165	Glasscock	Ted
0165	Goldbogen	Jacob
0165	Gollrad	Glen
0165	Goodell	Leonard J
0067	Goodman	Lanny
0007	Grabner	David
0135	Gregory	Shawn
0123	Griffith	Richard
0165	Griggs	Donald R
0165	Guarnieri	Robert
0115	Gunn	Richard and Shirley
0053	Gunn	Scott
0061	Gunn	Scott
0008	Haack	Karl and Rose
0147	Haack	Karl and Rose
0165	Haass	Michael
0124	Hafich	Willa
0165	Hafich	Willa
0165	Halliburton	David
0165	Hannigan	Cathy
0165	Harding	David C
0165	Harrington	David Joseph
0069	Havard	Patrick
0165	Henderson	Christopher
0009	Hengen	Casey
0165	Henry	Edward A
0165	Hensley	Mr. & Mrs. Alan
0149	Herhahn	Cynthia
0165	Hermann	Steven G
0144	Herner	Guy
0165	Herner	Guy
0165	Hertler	Melissa
0165	Hertler	Perry Quinn
0107	Hess	Richard
0165	Hewit	Eric R
0165	Hewitt	Josh
0074	Hill	William
0165	Hobart	Clinton G
0037	Holland	Kathleen
0165	Holloway	Roger
0055	Holmes	Ken
0165	Holmes	Kenneth
0165	Hopkins	Michael
0165	Horowitz, M.D.	Bruce
0165	Howard	Arthur
0054	Howard	Cathy

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0165	Ice	Gregory
0128	James	Paul
0142	Jensen	Craig
0070	Jochem	Heidi
0165	Johannesen	Chad
0076	Johnston	Rebecca
0165	Johnston	Becky
0005	Jordan	John
0165	Jordan	Ricardo
0165	Kain	Jenni
0165	Kass	Anne
0165	Keating	Teresa Gail
0165	Kennedy	Donald
0165	Kenward	Catherine
0165	King	Bruce
0165	King	Sylvia S
0165	Kiser	Christine
0165	Klabunde	James
0165	Knoeck	Stephen
0138	Knox	John
0051	Knox	Sandra
0075	Knox	Sandra
0165	Koch	Jeffry N
0165	Koch	Shonna
0165	Korsog	John
0096	Kovacic	Larry
0165	Kramer	Greg
0165	Krauch	Kenneth R
0165	Krenzel	Mark
0119	Kuehl	Nathan
0165	Kwack	Heemun
0165	Lackey	Bradley David
0165	Lawson Jr.	Harold E
0165	Lebak	John
0165	LeBlanc	Charles
0165	Ledger	Gabriel
0165	Leedom	Al & Barb
0165	Lepera	Steve
0165	Lewis	Tricia
0114	Lobdill	Jerry
0165	Lucero	Frank James
0165	Luck	Matthew
0165	Luffman	Aaron
0165	Lundahl	Anders Hansen
0165	Lyons	Dale
0151	MacCallum	Crawford
0165	Maloney	Dan
0019	Maner	Randy
0165	Marbury	Lisa

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0131	Maresma-Fois	Jose
0165	Maroni	Darin
0056	Martin	A
0143	Martin	Hugh
0062	Martin	Hugh
0073	Martin, MD	Hugh
0078	Martin, MD	Hugh
0120	Marshall	Bob
0165	Martin	Ashleigh Rene
0165	Martin	Preston
0165	Martinez	Anthony
0165	Mason	Max
0040	Mason	Silda
0165	Mather	Geoffrey
0165	Matonti	Maria
0099	Matzek	Sharon
0165	Mauermann	Paul
0165	Mayer	Andrew
0097	Mazzola	John
0165	McClure	Paul
0116	McDaniel	Shawna
0165	McDonald	John
0153	McGrann	Jack
0165	McNamara	Laura
0165	Meadows	Carrie
0165	Melnick	Philip
0165	Metzner	Paula F
0092	Middlebrook	Peter K.
0165	Miller	Robert
0165	Miller	Susan
0017	Milstein	Brandt
0165	Mitchell	Michael M
0141	Moore	Jan
0165	Morgan, MD	Kelly
0165	Morris	Christopher
0165	Morris	Scott
0165	Mulhauser	James S
0165	Mulhern	Steve
0165	Mullen	Patrick
0125	Murphy	Tom
0165	Nauer	Arlena De
0156	Nelson	Julianne
0165	Nenninger	John D
0165	Newsted	Ann
0165	Nims	Josh
0158	Njs1031	
0165	Noftsker	Susan
0013	Norlin	Jennifer
0165	Novick	David



<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0047	Oakland	Gerald
0165	Oakland	Gerald D
0165	O'Connell	Anna
0165	O'Donnell	Tim
0165	Olcott	Ginny
0165	O'Malia	John H
0118	Orlofsky	Debra
0165	Ortiz	Marcus
0165	Owens	Zachary
0165	Padilla	Raymond
0165	Pajka	Michelle
0154	Parkobobby	
0165	Paterick	David
0165	Paulson	Eric
0165	Payne	Jennifer
0044	Pearlman	Cindi
0129	Pearlman	Cindi
0165	Pedersen	Ronald D
0165	Peel	Byron Jon
0165	Pena	Rene D
0165	Peralta	Carolyn
0165	Perella	Steve
0046	Peterson	Erik
0165	Peterson	Erik G
0117	Peterson	Jon
0165	Pettiner	Shane
0165	Pickett	Bradley Patrick
0102	Pierce	Jennifer
0072	Pinkerton	Eric
0165	Pipkorn	Brian
0165	Pletta	Bryan
0165	Plummer	David
0165	Podva	David R
0012	Pommer	Harvey
0165	Porter	Alan
0165	Porter	Kris
0165	Preslar	Robert L
0045	Price	Reynold
0121	Prindle	Michael
0165	Prusack	Kate
0165	Puepke	Chantal
0165	Quiles	Kimberly
0165	Quinlan	Robert L
0165	Rangitsch	Thomas
0165	Rasmussen	R
0165	Rasmussen	Richard Gene
0165	Raymond	Christopher
0165	Raynovich	William
0165	Reaber	Douglas W

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0165	Read	Betty
0165	Reasonover	Les
0029	Red-Horse	John
0146	Red-Horse	John
0165	Renner	Richard
0165	Rice-McClure	Chris
0165	Riemer	Eunice K
0003	Riggs	Roger
0165	Ringer	Rob
0165	Ritchey	Steven
0165	Rivera	Phillip
0165	Robbenhaar	John F
0126	Robinson	Amy
0165	Robinson	Paul
0094	Robinson	Ries
0095	Rosol	Chris
0165	Roth	Daniel
0043	Russell	Eric
0057	Saia	Jared
0165	Sanders	Brent
0165	Sanders	Maureen
0165	Satterthwaite	Daniel
0026	Saunders	Charles B.
0165	Scheele	Mark W
0011	Scheer	Chad
0165	Schick	Gustav
0150	Schneider	Ken and Mary Lou
0165	Schneider	Kenneth C
0023	Schultz	Anne
0165	Schultz III	Ralph H
0140	Schutz	Jim
0165	Schutz	Jim
0165	Schutz	Rhonda
0165	Schwerts	Earl
0165	Sears	Don
0106	Selby	Hugh
0165	Selby	Hugh David
0165	Serna	Lysle Montes
0165	Severn	Ryan
0165	Shainline	Michael R.
0100	Shane	Jackie
0165	Shook	Susan
0165	Sletten	Marcia
0050	Smith	Carl
0165	Smith	David R
0132	Smith	Greg
0165	Souder	Paul R
0014	Stacy	Ty
0165	Stageman	Chris

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0165	Staib	Patrick
0165	Stearns	Ted
0165	Steckelberg	Ben
0165	Steinbrenner	Max
0165	Stevens	John S
0165	Stewart	F Kyle
0165	Stoughton	Robert S
0090	Strohl	Steve and Betsey
0165	Spear	E Mark
0165	Sprague	Josh
0165	Spray	Jeremy
0165	Spurrier	Jessica T
0165	Swanson	Shane
0058	Sweetman	Susana and Andrew
0165	Swicegood	Travis
0152	Sy	Eduardo
0103	Taylor	Emory
0165	Taylor	Emory C
0098	Teague	Kathleen
0136	Terryl	Linda
0165	Tewes	Diane
0165	Tewes	Neil
0101	Theisen	Lisa
0122	Thomas	Pete
0165	Thorson	Mike
0165	Toone	Randy
0165	Torcoletti	Paul
0165	Tow	Eric D
0165	Tozier	Larry Charles
0165	Turner	Michael
0001	Turgeon	Jennifer
0049	Turgeon	Jennifer
0022	Turgeon	Matt
0039	Turgeon	Matt
0080	Turgeon	Matt
0137	Turgeon	Matt
0165	Turgeon	Matthew C
0165	Traxler	Matthew A
0165	Trujillo	Raydaniel G
0165	Tyrrell	Matt
0165	Vandecar	Cora
0048	Vandeman	Mike
0020	VanGeet	Otto
0165	Vedda	Nancyanne
0041	Vigil	Patrick
0077	Vigil	Patrick
0165	Vigil	Patrick R
0159	Vuchinski	Stephen
0165	Walker	Mickey

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Public Comments (continued)		
0165	Wallace	Stephen
0165	Wallace-Hente	Stuart
0165	Ward	David B
0104	Watson Ph.D	Robert
0130	Watt	Raymond
0165	Weier	Greg
0165	Weitkunat	Curt
0165	Wenzel	Dayton
0134	Werkmeister	Jim
0024	Wessel	Brenda
0035	White	Greg
0165	White	Hillary
0165	White	Scott
0083	Wiles	Bill
0165	Wiley	William A
0165	Williams	David C
0165	Wilson	Don D
0165	Wilson	Peter
0165	Wise	Timothy Brooks
0042	Wishard	Lisa
0010	Wrons	Ralph
0015	Zahnle	Paul
0165	Zavitz	Diana
0165	Zeller	Noah Douglas

## Oral Comments

<i>Letter #</i>	<i>Last Name</i>	<i>First Name</i>
Oral Comments		
0185	Becker	Richard
0181	Bohn	Juliette
0178	Boyd	John
0187	Calderone	Jim
0169	Cherry	Brian
0184	Cote	Marley
0175	Fitzpatrick	Tom
0166	Gilliland	Gary
0167	Gunn	Scott
0170	Jensen	Craig
0172	Knox	Sandra
0196	Lucero	Michael
0173	Martin	Hugh
0186	McCampbell	Steve
0189	O'Malia	John
0176	Peterson	Erik
0177	Pinkerton	Eric
0180	Red-Horse	John
0188	Reineke	Mark
0195	Rivera	Dion
0192	Russell	Chris
0179	Schrader	Matt
0174	Smith	Alfred G
0183	Souder	Paul
0197	Speaker from the Floor	
0198	Speaker from the Floor	
0199	Speaker from the Floor	
0191	Stolp	Staci
0190	Strauch	Jason
0194	Swiler	Tom
0171	Turgeon	Jeni
0168	Turgeon	Matt
0193	Whiton	Ken
0182	Yorton	Victoria

## Agency Comments

<i>Letter #</i>	<i>Agency</i>	<i>Last Name</i>	<i>First Name</i>
Agency Comments			
0206	AFRL Directed Energy Directorate	Good	R Earl
0211	Central New Mexico Audubon Society	Myers	Jeffrey D
0201	Congressional Representative	Wilson	Heather
0217	Friends of Otero Canyon		
0207	Hunt & Davis, P.C.	Davis	Catherine F
0205	Mayor, Village of Tijeras, New Mexico	Chavez	Gloria J
0212	MTBAccess	Flint	Mark
0204	National Mountain Bike Patrol	McGrann	Jack
0210	New Mexico Dept. of Game and Fish	Kirkpatrick	Lisa
0214	New Mexico Horse Council, Inc.		
0215	Open Space Division	Jay	Hart
0202	United States Dept. of Agriculture	Dils	Clifford
0209	United States Forest Service	Price	Joe
0218	United States Forest Service		
0216	UNM Bicycle Club	Jackie	Shane
0208	REPamerica	Whiton	Ken
0203	Sandia Peak Tram Company, Sandia Peak Ski Company, Santa Fe Ski Company	Abruzzo	Richard
0200	Trail Partners	Reineke	Mark
0213	Two Wheel Drive Bicycle Shop	Ervin	Charles G

## General (GE)

Letter #	Response #	Response
0001 0080	GE-1	The base did accept hundreds of on-line comments. Mr. Chandran was mistaken and the mistake was corrected.
0002 0004 0005 0015 0016 0023 0074 0076 0077 0089 0149 0152	GE-2	The SaveOtero proposal was considered as part of the public comments. Please see Section 2.2.4 of the Final EA for a discussion of the SaveOtero proposal.
0008 0133 0134 0135	GE-3	No known injuries have occurred at KAFB or in Otero Canyon. Personnel working in the Withdrawal Area frequently find UXO and report it to the EOD for assessment and disposal.
0008 0123 0021 0127 0024 0130 0025 0131 0026 0133 0033 0134 0043 0140 0046 0142 0050 0144 0053 0145 0056 0147 0059 0148 0063 0150 0084 0152 0085 0161 0093 0161 0097 0164 0098 0170 0099 0171 0102 0175 0104 0183 0105 0195 0114 0200 0115 0201 0119 0203 0121 0209 0216	GE-4	This is not possible until the UXO in the area can be located and removed. In addition, most of the Withdrawal Area is used for military training and for research and development testing on a regular basis.

<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0010 0116 0020 0121 0021 0133 0025 0134 0074 0135 0075 0142 0076 0144 0077 0147 0078 0149 0079 0152 0081 0165 0089 0166 0090 0169 0091 0172 0092 0193 0093 0200 0101 0208 0105 0213 0111 0216 0114 0217	GE-5	Recreational impacts caused by closing trails within the Withdrawal Area are considered in Section (4.4.2.1) of the Final EA. The trails to the East of the Withdrawal Area boundary are not on KAFB and would not be impacted by the Proposed Action.  This area was withdrawn from all forms of public appropriation by federal law in the year 1943 for use exclusively by the DoD through Public Land Order 995.
0015	GE-6	The proposed fence line has been walked by base personnel.
0016 0092	GE-7	Potential recreational impacts of the Proposed Action are considered in Section (4.4.2.1) of the Final EA.
0016 0025 0074 0076 0085 0089 0092 0093 0102 0105 0132 0140 0145	GE-8	A “draft” FONSI was prepared with the Draft EA and circulated to the public in accordance with 40 CFR 1501.4(e) and 40 CFR 1506.6(a) of the CEQ regulations implementing NEPA.
0019 0021 0039 0063 0074 0075 0076 0077 0114 0121 0144 0152	GE-9	Personnel at KAFB have considered the public comments on the Draft EA and have analyzed numerous alternatives to the Proposed Action that could be selected by the 377 ABW Commander. KAFB extended the initial public comment period from 30 to 60 days in order to encourage and facilitate public involvement. KAFB also arranged a public meeting at which the public was given opportunities to present alternatives to the Proposed Action. All of the information presented by the public was considered during the decision-making process.



<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0022 0117 0024 0120 0027 0121 0059 0124 0065 0126 0070 0128 0073 0129 0074 0132 0075 0140 0076 0144 0077 0149 0082 0160 0084 0164 0087 0165 0096 0169 0097 0176 0098 0184 0101 0193 0102 0203 0104 0208 0114 0215	GE-10	<p>The land has not been “open” to public use since 1943. This area was withdrawn from all forms of public appropriation by federal law in the year 1943 for use exclusively by the DoD through Public Land Order 995.</p> <p>While the land has, in fact, been “used” by the public for many years, this use was not authorized by DoD. Ineffective enforcement of the eastern boundary of the base does not constitute authorization of public use.</p>
0022 0121 0024 0128 0068 0129 0070 0144 0072 0152 0074 0160 0075 0171 0076 0191 0077 0206 0085 0215 00910101 0104 0111 0114	GE-11	The Air Force broadened the scope of alternatives considered in the Final EA.
0022 0039 0043 0085 0092 0100 0146 0175 0177 0192	GE-12	The fence must comply with multiple requirements from multiple agencies. The need for security must be balanced against the need to reduce impacts on wildlife populations.
0027 0049	GE-13	A public meeting was held in June of 2003.

Letter #	Response #	Response
0028 0092 0133 0134 0135 0146 0171	GE-14	That information is sensitive and is not releasable to the public.
0029 0039 0146 0180	GE-15	<p>This area was withdrawn from all forms of public appropriation by federal law in the year 1943 for use exclusively by the DoD through Public Land Order 995.</p> <p>The land was withdrawn in 1943 so that the USFS property north of the withdrawn area has been landlocked since the Rio Grand Portland Cement Corp., Tijeras Plant was acquired in the 1950's.</p>
0029 0085 0146 0160 0164 0200	GE-16	The area is extensively used for testing and training purposes but details of that use are sensitive and cannot be discussed.
0029 0129 0146 0164 0169	GE-17	Kirtland encompasses over 52,000 acres of land withdrawn to both the DoD and the DOE. The forested area is used for a variety of research and development, testing, and military training purposes. Many of the activities that occur on base require significant safety borders which consumes much of the land on base.
0039	GE-18	The Final EA includes information on installation security.
0039 0068 0133 0134 0135 0189	GE-19	Thank you for your comment. Kirtland is addressing security around the entire installation.
0039 0078	GE-20	KAFB does not have knowledge of whether the USFS has the resources to reroute trails. This statement in the EA is based on previous and ongoing consultation with USFS representatives.
0039 0069 0100	GE-21	This area was withdrawn from all forms of public appropriation by federal law in the year 1943 for use exclusively by the DoD through Public Land Order 995. The USFS, DOE and USAF jointly manage the resources within the Withdrawal Area.
0039 0168 0187 0217	GE-22	There is a plan to remove UXO. Money for UXO clean-up is not currently available.

<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0039 0114 0074 0121 0075 0131 0076 0140 0077 0144 0078 0147 0084 0149 0091 0152 0092 0166 0093 0217 0101 0218 0105	GE-23	The socioeconomic analysis in Section (4.11.2) of the EA has been expanded to include analysis of impacts on those businesses.
0043 0148 0085 0161 0090 0171 0133 0177 0134 0202 0135 0209 0146 0218	GE-24	The Proposed Action has been revised to include a 10-foot wide clearing on both sides of the fence. This clearing would contain a patrol road on the Kirtland side of the fence. This would make patrolling easier as well as providing a fire break in accordance with USFS requests.
0043 0085 0092 0146 0170 0177 0193 0208 0215	GE-25	The discovery of UXO on Kirtland is quite common. Numerous reports are on file covering several hundred items found on base. Personnel working in the Withdrawal Area frequently find UXO and report it to the EOD for assessment and disposal.
0043 0058 0062 0083 0090 0100 0130 0141 0162 0217	GE-26	Effects on wildlife are addressed in Section (4.7.2.1) of the EA.
0052 0078 0080 0201	GE-27	The public comment period was originally extended from one month to two. A public hearing was also held.
0053	GE-28	The plan for the fence is to provide installation security. The location of the fence under each alternative is discussed in the Final EA.
0053	GE-29	The letters EPA in the acronym NEPA stand for Environmental Policy Act. It is unclear whether this comment intended to refer to the Environmental Protection Agency (EPA). This EA was prepared in accordance with the County on Environmental Quality (CEQ) regulations implementing NEPA and USAF regulations implementing NEPA. The same regulations prescribe the circumstances under which an Environmental Impact Study (EIS) is required.

Letter #	Response #	Response
0053 0066 0153 0171 0204 0215	GE-30	Alternatives to the fence included not building a fence. In that alternative the security of the installation was considered; however, the effectiveness of citizens' deterrence on terrorist as compared to a fence is unknown and beyond the scope of this EA. Citizens are not trained in police procedures, are not authorized to carry firearms on the base or to make arrests. Civilians trespassing in the Withdrawal Area make the job of identifying terrorists much more difficult.
0053 0074 0076 0077 0093 0121 0144 0152 0172	GE-31	Forest fire prevention as affected by the Proposed Action is addressed in Section (4.7.2.1) of the EA. Training, Testing, and Range Management is outside the scope of this EA.
0061	GE-32	Copies of the Draft EA were made available at several local libraries. When the EA was sent to the libraries for public review, ads were placed in the <i>Albuquerque Journal</i> , the <i>Tribune</i> , <i>East Mountain Telegraph</i> and the <i>Albuquerque Journal's East Mountain</i> paper. A copy was also made available on the Kirtland AFB website.
0062 0085	GE-33	In the Proposed Action in the Draft EA no heavy machinery would be used (see Section 2.1.1). However, the Final EA includes the construction of fire-breaks on either side of the fence that were not included in the Draft EA. Fire-break construction would require heavy machinery and the Final EA includes an assessment of those impacts.
0062	GE-34	The discovery of UXO on Kirtland is quite common. Numerous reports are on file covering several hundred items found on base. These finds are reported to EOD for assessment and removal if required.
0064 0215	GE-35	Outside the scope of this EA.
0074 0075 0076 0077 0078 0114 0121 0143 0144 0152 0172 0201	GE-36	Every effort was made to provide the public with notice of the public meeting. When the EA was sent to the libraries for public review, ads were placed in the <i>Albuquerque Journal</i> , the <i>Tribune</i> , <i>East Mountain Telegraph</i> and the <i>Albuquerque Journal's East Mountain</i> paper. The ads had the phone number, address and email address for a base point of contact. A second set of ads was run a couple of weeks after the first to correct the title of the EA and more ads were run when the comment period was extended. Additional ads were run in all of the above mentioned papers when the public meeting was announced. All of the ads had the same contact information.

Letter #	Response #	Response
0074 0075 0076 0077 0100 0102 0104 0114 0121 0129 0144 0152 0216	GE-37	Any trails built on the withdrawn land were in violation of the Public Land Order and should not have been built. Only trails located on the withdrawn land are subject to closure. USFS representatives have stated that they have not spent tax dollars on trails on Kirtland AFB. It appears that individuals have built the existing trails on the Withdrawal Area at their own expense.
0074 0075 0076 0077 0114 0121 0144 0152	GE-38	An Environmental Assessment was prepared in compliance with the regulations implementing the National Environmental Policy Act (NEPA).
0074 0076 0077 0078 0114 0121 0144 0152	GE-39	The environmental contractor for the base is not affiliated with any of the construction contractors at the base. There is no conflict of interest involved in the preparation of this EA.
0085 0131 0133 0134 0135 0146 0171 0184 0189 0195	GE-40	Testing and training occur in the Withdrawal Area every day but details of that use are sensitive and cannot be discussed.
0085 0218	GE-41	Security is one reason for building a fence. Marking the territorial boundary is also important due to the known presence of UXO within the KAFB boundary and potentially dangerous conflicts between recreation and military training.
0085 0092 0146 0180	GE-42	It is the USAF's responsibility to ensure remediation to the greatest extent possible in light of future land uses. The USAF required that the McCormick Ranch property be surveyed and cleared of UXO prior to transferring the property. The same would be required of any land in the Withdrawal Area.
0090 0147	GE-43	Impacts on soil have been addressed in Section 4.5.2.1 of the Final EA.
0092	GE-44	New fencing meeting the new requirements is being constructed and/or upgraded around the installation.

<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0092	GE-45	The Final EA has been revised to specifically describe the topics mentioned above at the end of Section 2.
0092	GE-46	Region of Influence (ROI) represents the geographical area, or region, wherein the project-induced changes to the socioeconomic environment would occur. Therefore, ROI is only addressed in the socioeconomic section of the Draft EA Section 3.11.1.
0092	GE-47	<p>The withdrawn land is not open to public access. The military is not required to open its installations to reduce recreational impacts in surrounding areas. The number of miles of trails that the public is being excluded from on KAFB is negligible when compared to the miles of trails open to public use in the Albuquerque area.</p> <p>This area was withdrawn from all forms of public appropriation by federal law in the year 1943 for use exclusively by the DoD through Public Land Order 995.</p>
0092 0217	GE-48	<p>Potential impacts on low-income and minority populations were addressed in Sections 3.11.2.1, 3.11.3.1, and 4.11.2 of the Draft EA.</p> <p>This area was withdrawn from all forms of public appropriation by federal law in the year 1943 for use exclusively by the DoD through Public Land Order 995.</p>
0092 0162 0171 0201	GE-49	Additional data was added to the Final EA to inform the public about why certain alternatives were considered but not carried forward.
0092	GE-50	This is addressed in Section 2.1 of the Final EA.
0092	GE-51	It is unclear whether this comment is referring to vehicles needed for construction or vehicles used in enforcement of the boundary. Types of vehicles are addressed in Section 2.1.1., as well as in Section 4 discussing Air Quality and Table 4-1.
0092	GE-52	This is discussed in Sections 2.1 and 2.1.2 of the Final EA.
0092	GE-53	Road would be constructed where terrain permits. For the Proposed Action, it is estimated that most of the 5-mile fence would have a patrol road on the western side. Alternative 1 traverses rougher terrain and less road construction would occur if this option were implemented, approximately 4 miles. Alternative 2 would have the least road construction of any of the options, approximately 3 miles. However, in all cases a firebreak would be cleared on both sides of the entire fence line. Environmental impacts would result from the firebreak rather than road construction.
0092	GE-54	The construction and rerouting of trails referred to in the Draft Eastern Fence EA is described on Page 26 of the 1996 USFS EA under Alternative 2, Trails and Trailheads. The impacts of that alternative are described on pages 87 and 88 of that same document. This is not a new proposal and has been analyzed in a past NEPA document.
0092	GE-55	<p>The only reference addressing the format of an EA in Title 32 of the Code of Federal Regulations is in 32 CFR 989.14 which states “the format for the EA may be the same as the EIS.”</p> <p>Thank you nonetheless for your suggestion. The USAF is always looking for ways to improve its operations. Your input was considered in this endeavor.</p>

Letter #	Response #	Response
0092	GE-56	The archaeological survey is addressed in Section 4.10.2.1 of the Final EA. Details of exact locations of cultural resources are not released to the public to prevent vandalism and pot hunting.
0092	GE-57	Given the nature of the Special Operations Forces mission, their activities could affect the health of anyone in the Withdrawal Area during training missions. Land Use would not change or be affected by the ongoing training operations.
0092	GE-58	Personnel at Kirtland AFB do not have that information.
0092 0132 0174	GE-59	Analysis of the potential socioeconomic impacts of the Proposed Action is found in Section 4.11.2.1 of the Final EA.  This area was withdrawn from all forms of public appropriation by federal law in the year 1943 for use exclusively by the DoD through Public Land Order 995.
0092 0168	GE-60	The team of people that prepared the EA is comprised of environmental professionals who have years of experience in producing this kind of document for this kind of action. They all have three to eight years of experience in preparing NEPA documents at Kirtland AFB and are familiar with all of the resources found on base.
0092	GE-61	The decision to build the fence and where to build it have not been made and, as a result, no contract has been awarded.
0092 0161 0166 0167 0171 0172 0203 0215	GE-62	The definition of “Significance” in the CEQ Regulations and USAF Regulations serve as guidance in defining significance. Analysis of each environmental impact used this guidance in reaching a decision about the significance of an impact.
0092 0147 0149 0166 0167 0203 0215 0218	GE-63	The term “controversial” refers to cases where a substantial dispute exists as to the size, nature, or effect of the major federal action rather than to the existence of opposition to a use, the effect of which is relatively undisputed. “Controversial” is not equated with neighborhood opposition.
0129 0132 0146 0170 0171 0174 0184	GE-64	The lack of UXO encounters by trail users in the past does not relieve KAFB of its responsibility to protect the public against known or suspected explosive hazards.

<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0133 0134 0135 0150 0161 0168 0193 0208	GE-65	In the past, KAFB posted signs and also constructed fences in the Withdrawal Area only to have them vandalized. Although admittedly inadequate in preventing unauthorized access some signs and remnants of old fences can be found along the eastern boundary of both the DOE and DoD portions of the Withdrawal Area but Kirtland Air Force Base (KAFB) has not met its responsibility in enforcing the installation boundary. The danger has always existed and KAFB cannot ignore its responsibility. KAFB agrees that it would be irresponsible to not take responsible preventative measures to protect the public from UXO.
0133 0134 0135 0146 0171 0195	GE-66	Interruptions to training have occurred in the past. Without controlling access to training areas on base that potential continues to exist. Erecting and patrolling a fence would reduce that potential and provide base security.
0137	GE-67	This was not done intentionally. The word "save" in e-mails triggered a spam/virus filter used to delete unofficial e-mails for "sales" and "save money" gimmicks. This was discovered to affect the public comment system and people were asked to delete the word "save" from their message header.
0141	GE-68	If future changes in the USAF mission allow or require the base to return a portion of the Withdrawal Area to the USFS, then the base Commander would take necessary measures to ensure that the land is returned.
0143	GE-69	The regulatory provision referred to in this comment applies to public "hearings" for an "EIS." KAFB held a public meeting to facilitate public involvement. The regulatory provision governing Public Involvement for NEPA-related hearings is 40 CFR 1506.6. KAFB followed the proper procedures for holding a public meeting to facilitate public involvement on this EA.
0146	GE-70	Base Realignment and Closure (BRAC) is a federal initiative designed to make the military more efficient by consolidating resources. Under the initiative all military installations are considered for realignment or closure. KAFB was evaluated in the BRAC process and remained open because of the continued relevance of its missions.
0146	GE-71	The primary purpose of the fence is installation security. Public safety is also a major concern. Remediation is absolutely a priority for KAFB and is planned. Specific funding for UXO clean up is not currently available.
0146 0168	GE-72	There is no requirement to possess these credentials to be qualified to prepare NEPA documents.
0147 0159 0169 0217	GE-73	With few exceptions, the fence would be constructed in an area that is only visible in the immediate vicinity of the fence because it would be screened from distant observers by trees. The proposed fire break on both sides of the fence would be visible from more distant observation areas, but would resemble fire breaks already cleared by the USFS, which are common throughout the area. The visual impact was considered in the EA.



<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0168	GE-74	Unexploded ordnance is material that was fired from a variety of weapons on Kirtland over the past 60 years. Much of the ordnance in the area discussed in the EA is from the Proximity Fuse development program during World War II. Some of the UXO is explosive, and some is research and development materials. Most of it is considered to be hazardous and the public was excluded from the Withdrawal Area specifically to protect them from this material.
0168	GE-75	The Draft EA should have been clearer that gray vireos only occupy the lowest elevations of the piñon-juniper woodland habitat. Gray vireos occupy certain types of habitat based on the species preference, which are called habitat requirements. Discussion of the gray vireo in Section 4.7.2.1 of the Final EA has been updated to reflect findings from the 2003 gray vireo study conducted by Kirtland AFB.
0172	GE-76	The Proposed Action would not change access to the forest by USFS personnel and would not change any current forest management activities. However, bark beetles are discussed briefly in Section 3.7.2.1 of the Final EA.
0177	GE-77	The UXO is scattered throughout the area and, as a result, the whole area must be surveyed. Although funding is not currently available, the USAF would require that any land in the Withdrawal Area that would remain outside the fence be surveyed prior to allowing public access.
0184	GE-78	Air Force installations such as KAFB have only limited control over where monies are allocated. Money received by the installation is often restricted to certain actions for which it can be used. In this case, KAFB does not have the authority to use money for UXO remediation when that money is earmarked for security. Specific funding for UXO clean up is not currently available.
0197	GE-79	The public comments have all been responded to in the Final EA and that document will be made available to the public for 30 days prior to the signing of the final decision document.
0198	GE-80	There is no other public meeting anticipated. The Final EA will be made available to the public for 30 days prior to the signing of the final decision document.
0175	GE-81	The Installation Commander.
0202 0218	GE-82	The NMDG&F has reviewed the design of the wildlife passes. Section 2.1.1 has been changed to exclude the US Fish and Wildlife Service from approving the design of wildlife passes.
0207	GE-83	Any fencing constructed by Kirtland AFB would be along or within surveyed, legally established property lines.
0209	GE-84	Both Alternative 1 and 2 referring to above were eliminated from further consideration based on the 3/11/03 meeting between USAF and USFS personnel.
0209	GE-85	The Alternative discussed above was eliminated from further consideration in the Draft and Final EA.
0209	GE-86	The DOE has been involved in discussions of fence placement alternatives.
0209 0218	GE-87	Section 4.7.2.1 of the Final EA has been updated to reflect the USFS's comments about salvaging merchantable wood and the disposal of remaining slash. Kirtland AFB would make available all salvageable wood to the public and would chip remaining slash to be broadcasted as directed by USFS guidelines. Contractors employed for the construction of the fence would follow all relevant fire restrictions.

<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0209	GE-88	Comment Incorporated into Final EA. The text for warning signs has yet to be determined.
0210	GE-89	Design change incorporated into the Final EA.
0213 0215 0217	GE-90	Alternative 1 in the Final EA is comparable to the Preferred Alternative in the USFS 1996 Environmental Analysis in that it will eventually allow continued public access to the majority of the Otero Canyon trail and all of the Tunnel Canyon trail.
0218	GE-91	The Proposed Action and Alternatives in the Final EA have been changed to accommodate USFS concerns regarding fire fighting. In addition, land use and recreational impacts are addressed in the Final EA.
0218	GE-92	Multiple lock gates would be added following consultation with USFS, DOE, NMDG&F and security forces.
0218	GE-93	Comment incorporated in Final EA.
0218	GE-94	The impacts of the No-Action Alternative are addressed in the Draft and Final EAs. Additional information has been added to the Summary.
0218	GE-95	Kirtland AFB is currently working on a Road Closure Plan for the Withdrawal Area. This plan is entering its draft phase and follows the 1996 Ecosystem Management Plan for the National Forest Lands In and Adjacent to the Military Withdrawal EA. Kirtland AFB has been communicating with Cibola National Forest personnel in regards to this plan and will continue to do so in the future.
0218	GE-96	Alternative 4 in the Draft EA is now Alternative 1 in the Final E A. The construction and rerouting of trails referred to in the Draft Eastern Fence EA is described on Page 26 of the 1996 USFS EA under Alternative 2, Trails and Trailheads. The impacts of that alternative are described on pages 87 and 88 of that same document.
0218	GE-97	Legal land uses would not change as a result of the Proposed Action or Alternatives.
0218	GE-98	The Air Quality Section 3.2 and the Water Quality Section 3.6 in the Final EA have been reduced to be as concise as possible while still adequately describing regulatory requirements, existing conditions, and impacts.
0218	GE-99	This section summarizes federal, state, and local regulations for the protection of biological resources. Although wetlands are not affected, it would be premature to dismiss impacts to wetlands before proper analysis was completed.
0218	GE-100	<p>The Final EA has been reduced to be as concise as possible in all sections while still adequately describing regulatory requirements, existing conditions, and impacts.</p> <p>Although floodplains are not affected, it would be premature to dismiss impacts to floodplains before proper analysis was completed.</p>

<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0218	GE-101	<p>Although there are no impacts to environmental justice or safety risks to children from the Proposed Action or Alternatives, these Executive Orders are required to be discussed in documents addressing the impacts of federal actions:</p> <p>EO 12898 – Environmental Justice in Minority Population and Low-Income Population Section 4.11.2.1 must be addressed for federal actions.</p> <p>EO 13045 – Protection of Children from Environmental Health Risks and Safety Risks Section 4.1.2. states that “each federal agency (applies to DoD) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children”.</p>
0218	GE-102	Consultation with the Albuquerque District USACE indicates that dredge and fill permits are required for dry arroyos that are identified as “Waters of the US”.
0218	GE-103	The Proposed Action and Alternatives in the East Fence EA would comply with USFS requirements for prescribed burns and fire breaks and with NMDG&F requirements for wildlife openings. Kirtland AFB is currently working on a Road Closure Plan for the Withdrawal Area. This plan is entering its draft phase and follows the 1996 Ecosystem Management Plan for the National Forest Lands In and Adjacent to the Military Withdrawal EA. Kirtland AFB has been communicating with Cibola National Forest personnel in regards to this plan and will continue to do so in the future. Additional trails in the area would be dependent on the alternative selected by the Installation Commander.
0218	GE-104	The Human Health and Safety Section 3.1 in the Final EA has been reduced to be as concise as possible while still adequately describing regulatory requirements, existing conditions, and impacts.
0218	GE-105	The Noise Section 3.3 in the Final EA has been reduced to be as concise as possible while still adequately describing regulatory requirements, existing conditions, and impacts.
0218	GE-106	The Land Use Section 3.4.2 has been revised in the Final EA.
0218	GE-107	The East Mesa and the Manzanita Mountains are large geological formations; therefore discussions pertaining to these geological formations encompass large areas which need to be addressed. Discussion of soil resources in Chapter 3 of the Final EA has been shortened to only include potential soil associations affected by the Proposed Action. Geological resources are considered in this EA since construction of the proposed security fence would directly impact, although not significantly, the resources itself, for example, auguring holes for fence posts and the effects of vehicle traffic to undisturbed soil regimes.
0218	GE-108	Comment incorporated in the Final EA. The grassland ecosystem, including vegetation and wildlife, at Kirtland AFB has been deleted from the Final EA as this vegetation community is not affected by the Proposed Action.

<b>Letter #</b>	<b>Response #</b>	<b>Response</b>
0218	GE-109	<p>Transportation and Circulation Section 3.8, Visual Resources Section 3.9, Socioeconomics Section 3.11, Environmental Justice Section 3.11.3, and Environmental Management Section 3.12 in the Final EA have been reduced to be as concise as possible while still adequately describing regulatory requirements, existing conditions, and impacts.</p> <p>Cultural Resources are addressed in Section 3.10 of the Final EA and have been reduced to be as concise as possible while still adequately describing regulatory requirements, existing conditions, and impacts. Details of exact locations of cultural resources are not released to the public to prevent vandalism and pot hunting.</p>
0218	GE-110	<p>Environmental Consequences in the Human Health and Safety Section 4.1 in the Final EA have been reduced to be as concise as possible while still adequately describing regulatory requirements, existing conditions, and impacts.</p>
0218	GE-111	<p>The USFWS was consulted about potential impacts to TES from the Proposed Action. Since no TES are known or expected to occur in the area impacted by the Proposed Action, no BAE was determined to be necessary by the USFWS.</p>

### Thank You (TY)

Letter #	Response #	Response
0003 0083 0006 0086 0007 0088 0008 0094 0009 0095 0011 0103 0012 0106 0013 0107 0014 0108 0017 0109 0018 0110 0031 0112 0032 0113 0034 0118 0035 0122 0036 0125 0037 0136 0038 0139 0040 0151 0041 0155 0042 0156 0047 0158 0048 0178 0051 0179 0054 0181 0055 0182 0057 0185 0060 0186 0067 0188 0071 0190 0194 0196 0202 0205 0211 0212	TY	Thank you for your comment. It was considered in reaching a final decision.
0030 0092 0138 0154 0157 0159 0163 0173	TY-1	Thank you for your comment.
0092	TY-2	Thank you for your comment. It was considered in reaching a final decision. Additional information has been added to Section 2.1 of the Final EA regarding details of the Proposed Action.
0092	TY-3	Thank you for your comment. KAFB paid careful attention to striking a balance between not enough information and too much information. We will continue to work on this in the future.